SCIENCE LIBRARY

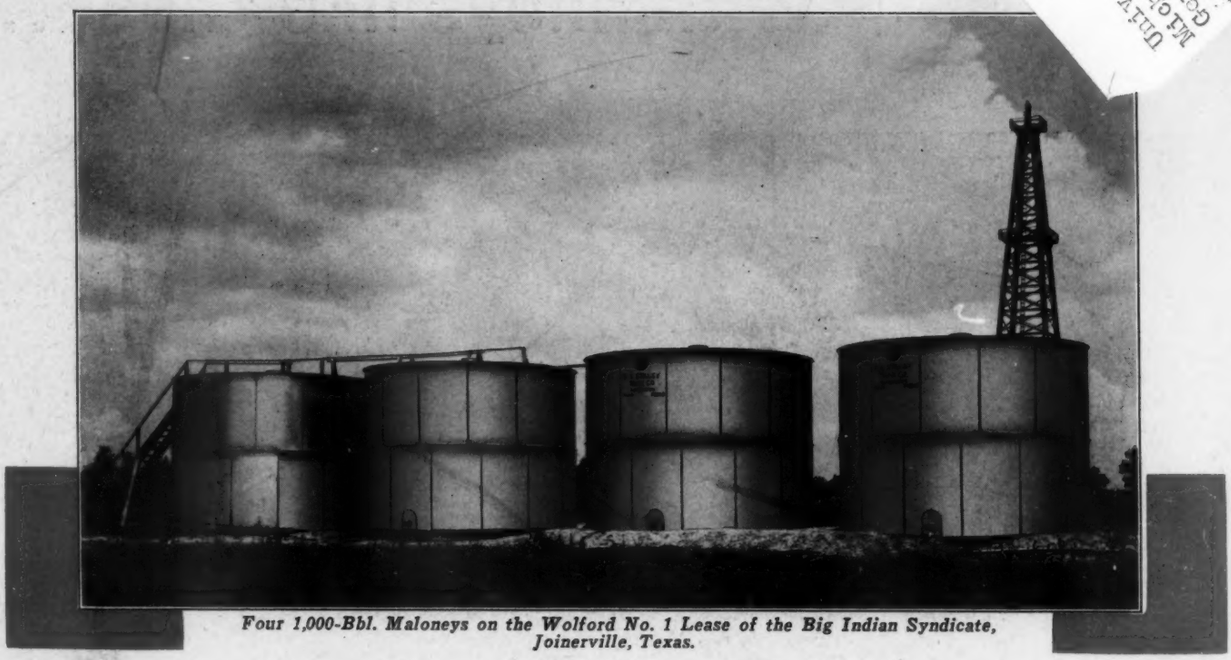
SEP 1 0 1931

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEER … KETING

Published Every Thursday TULSA, OKLAHOMA, SEPTEMBER 17, 1931 … Year

University of Oklahoma
General Library
Norman, Oklahoma



Four 1,000-Bbl. Maloneys on the Wolford No. 1 Lease of the Big Indian Syndicate, Joinerville, Texas.

Modernize your lease storage with our *Vapor-Pressure* Tanks

Inste… old-fashioned tanks that allow breathing to waste the most valuable fractions of your oil, use Maloney *Vapor-Pressure* Tanks and eliminate this waste. By protecting the volume of the oil and maintaining the well gravity, these tanks substantially increase your income.

Made of not less than 12-gauge, rust-resistant Keystone Copper Steel—with heavy 2" angle ties and reinforcements—coated with our special aluminum paint, which is unusually durable because made with a spar vehicle containing water-proof and alkali-proof Inhiburine—and equipped with valves set at 16 ounces pressure and 2 ounces vacuum—Maloney *Vapor-Pressure* Tanks meet the highest standards of money-making efficiency and money-saving durability.

MADE OF KEYSTONE AMERICAN COPPER STEEL

"Alone in Quality"

MALONEY TANK MANUFACTURING COMPANY

108 North Peoria Ave., Tulsa, Oklahoma . . . . . *Distributers at All Principal Petroleum Points*

Packed in Steel-Bound Crates for Export

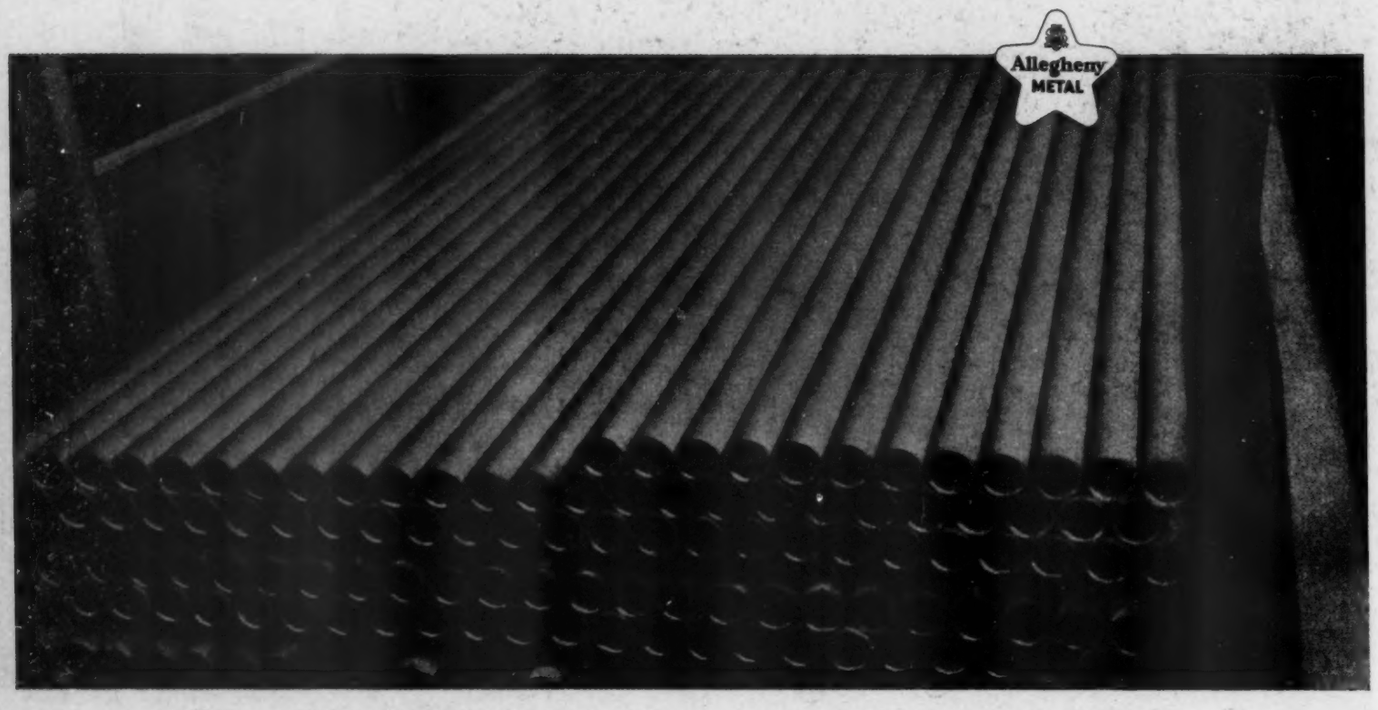
MALONEY

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

Advertisers' Index on Page 9 Table of Contents on Page 10

Can you Block Corrosion?

EASY with alloys like these....



OUT TO BATTLE *heat and corrosion in a cracking unit—these tubes are of Ascoloy 66.*

The most nearly perfect corrosion resistance . . . high heat resistance—are available in these alloys.

WHATEVER corrosives . . . or corrosives and heat combined—are eating into your equipment, the chances are that an Allegheny Alloy has already licked it.

It may not have happened in your own plant, but in some plant in which conditions are similar. Allegheny Alloys have done so many different jobs, in so many fields, that new corrosives to attack them are rare.

Where you need an alloy to withstand a greater range of corrosives than any other available, choose Allegheny Metal. When you need an alloy to withstand progressive corrosion, where surface discoloration does not matter, Ascoloy 33 will meet your needs.

For heat resistance to 2100 degrees F., Ascoloy 44 will be easy to fabricate and will serve well. For extreme heat resistance (to 2150 degrees F.) and simple fabrication, Ascoloy 55 is best.

If you are not familiar with these alloys, ask a friend who uses them. Or, better yet, have one of our men call. He'll be glad to talk over your methods to battle corrosion and heat.

ALLEGHENY STEEL COMPANY
Brackenridge, Pa. . . *Offices:* New York, Buffalo Chicago, Cincinnati, Cleveland, Detroit, St. Louis, Milwaukee, Los Angeles, Philadelphia. *Warehouse Stocks:* Joseph T. Ryerson & Son, Inc.—Chicago, Cleveland, Milwaukee, St. Louis, Cincinnati, Detroit, Buffalo, Boston, Jersey City, Philadelphia. In Canada: Samuel, Son & Co., Benjamin, Ltd., Toronto.

ALLEGHENY ALLOYS

The ADVERTISERS' INDEX

A

Ajax Iron Works
Alco Products, Inc.
Allegheny Steel Co. .....Inside Front Cover
Allis-Chalmers Mfg. Co.
Allis, Louis, Co., The
Allsteel Products Mfg. Co., Inc., The
Aluminum Co. of America
American Cable Co., Inc.
American Cast Iron Pipe Co.
American Iron & Machine Works Co.
American Meter Co. 33
American Radiator Co.
American Rolling Mill Co., The
American Sheet & Tin Plate Co.
American Stainless Steel Co.
American Steam Pump Co.
American Steel & Wire Co.
American Steel Works
American Tank & Equipment Corp.
American Well Works, The 104
Anchor Post Fence Co.
Armstrong Machine Works 7
Athey Truss Wheel Co.
Automotive Distillate Corp.
Axelson Mfg. Co., Ltd. 55
Ayer & Lord Tie Co. 111

B

Baash-Ross Tool Co.
Badger, E. B., & Sons Co.
Badgett Steam Lubricator Co.
Baker Oil Tools, Inc.
Barber-Greene Co.
Baroid Sales Co.
Barnsdall Refineries, Inc.
Barrett Co., The 39
Beaumont Iron Works Co., The
Benson & Henderson Pipe Line Construction Co.
Bethlehem Steel Co. 36
Bigelow-Liptak Corp.
Bignall & Keeler Machine Works
Blackor Co.
Black, Sivalls & Bryson, Inc.
Bradford Motor Works, Inc.
Brauer Machine & Supply Co.
Braun, C. F., & Co.
Brewster Co., Inc., The
Bridgeport Machine Co.
Bristol Co., The
Broderick & Bascom Rope Co.
Broderick Co., The
Brown Instrument Co.
Buckeye Traction Ditcher Co.
Burford Oil Co.
Butler Mfg. Co.
Byers, A. M., Co.
Byron Jackson Co.

C

Campbell Co., J. A.
Carey, Philip Co., The 64
Caterpillar Tractor Co.
Chain Belt Co.
Chaplin-Fulton Mfg. Co., The 109
Chapman Valve Mfg. Co., The
Chicago Bridge & Iron Works
Clark Brothers 51
Classified Wants 77-79
Cleveland Trencher Co., The
Colona Mfg. Co.
Columbian Rope Co.
Columbian Steel Tank
Columbus Forge & Iron Co., The
Consolidated Ashcroft Hancock Co., Inc.
Continental Supply Co., The 45
Cooper-Bessemer Corp., The
Corona Products, Inc.
Crane Co. 46

D

Darling Valve & Mfg. Co.
Dart, E. M., Mfg. Co.
Davey Compressor Co.
Davis Regulator Co. 107
Dearborn Chemical Co. 59
Dehydro, Inc.
Devine Mfg. Co., Inc., J. P.
Diamond Rubber Co.
Dixon Crucible Co., Joseph 105
Dodge Brothers Corp.
Donovan Boiler Works, Inc.
Dresser, S. R., Mfg. Co. 21

D

Driftmeter, Inc.
Du Pont de Nemours & Co., Inc., E. I.

E

Eagle-Picher Lead Co.
East Texas Refining Co.
Economy Pump & Tool Co., The
Edward Valve & Mfg. Co., Inc.
Elliott Mfg. Co.
Empire Oil & Refining Co.
Emsco Derrick & Equipment Co.
Ethyl Gasoline Corp.
Exchange Banks of Tulsa 73

F

Falk Corp., The
Fenwick-Reddaway Mfg. Co.
Fisher Governor Co.
Foster Wheeler Corp.
Foxboro Co., Inc., The
Franklin Valveless Engine Co.
Frick-Reid Supply Corp.

G

Gardner-Denver Co.
Garlock Packing Co., The 67
Gaso Pump & Burner Mfg. Co.
Gates Rubber Co.
General American Tank Car Corp.
General Electric Co. 8
General Paint Corp.
Globe Oil Tools Co.
Goodrich, B. F., Rubber Co., The
Goodyear Tire & Rubber Co.
Gott, H. P., Mfg. Co., Inc. 111
Goulds Pumps, Inc.
Granite City Steel Co.
Gray Processes Corp., The 4
Griscom-Russell Co., The
Guiberson Corp., The 42
Gulf Refining Co. 101

H

Halliburton Oil Well Cementing Co.
Harrisburg Pipe & Pipe Bending Co.
Hazard Wire Rope Co.
Hedges-Walsh-Weidner Co., The
Heeter, Sons & Co., Inc., C. M.
Hercules Motors Corp.
Hercules Supply Co.
Hercules Tool Co.
Hewitt-Gutta Percha Co.
Heydrick Mapping Co. 111
Highland Iron & Steel Co., The
Hill, Hubbell & Co.
Hope Engineering Co. 68
Hopper Machine Works, Inc.
Hough, Charles N., Mfg. Co., The
Hughes Tool Co. .....Back Cover
Humble Oil & Refining Co.

I

Improved Steel Gas Engine Head Co.
Industrial Brownhoist Corp.
Industrial Dallas, Inc.
International Harvester Co. of America
International Nickel Co., Inc., The
International-Stacey Corp.
International Supply Co.

J

Jackson Co., Byron
Jackson Engineering Corp.
Jarecki Mfg. Co.
Jenkins Bros.
Jerguson Gage & Valve Co.
Johns-Manville Corp. 62
Jones & Laughlin Steel Corp. 63

K

Kellogg, M. W., Co., The
Kennedy Valve Co., The
Kerotest Mfg. Co.
Key Boiler Equipment Co.
Kirk-Morrow Iron Works, Inc.

L

Landis Machine Co., Inc. 3
Layne & Bowler Co.
Leader Iron Works, Inc.
Leeds & Northrup Co.

L

Lemons, Inc., Henry L.
Leonard Construction Co.
Limbert & Co., George B. 91
Lincoln Electric Co. 87
Linde Air Products Co.
Littleford Bros., Co.
Longyear, E. J., Co.
Lucey Products Corp.
Ludlow Valve Mfg. Co.
Lufkin Foundry & Machine Co., The 60
Lummus Co., The
Lunkenheimer Co., The 88

Mc

McAlear Mfg. Co., The
McClintic-Marshall Corp.
McCord Radiator & Mfg. Co.
McEvoy, J. H., & Co.
McIntosh & Seymour Corp.
McKee, Arthur G., & Co.

M

MacClatchie Mfg. Co.
Magnolia Petroleum Co.
Mair, D. S., Machinery Corp.
Maloney Tank Mfg. Co. .....Front Cover
Marshall Chamber of Commerce
Marsh Gauge Pole Co. 111
Martin-Decker Corp.
Mathieson Alkali Works, Inc., The...8A-8B
Merco Nordstrom Valve Co.
Metric Metal Works 33
Michigan Valve & Foundry Co.
Mid-Continent Map Co.
Midwest Piping & Supply Co., Inc.
Mine Safety Appliance Co.
Moon Mfg. Co., The
Moore, Lee C., & Co., Inc.
Mooriane Co., Inc.
Moser Manufacturing Co.
Multiplex Display Fixture Co.
Munn & Co. 111

N

National Airoil Burner Co. 104
National Equipment Co.
National Lead Co.
National Supply Co. 41
National Tank Co.
National Tank Seal Co.
National Transit Pump & Machine Co. 19
National Tube Co.
Naylor Pipe Co. 71
Neilan Co., Ltd.
North American Car Corp. 111
Northwest Engineering Co.

O

Oakite Products, Inc.
O'Brien Steel Construction Co.
Ohio Injector Co., The
Oil Conservation Engineering Co., The
Oil Well Supply Co. 27
Oklahoma Gas & Electric Co.
Ottumwa Iron Works
Oxweld Acetylene Co.

P

Page Fence Assn.
Paraffine Companies, Inc., The
Parkersburg Machine Co.
Parkersburg Rig & Reel Co., The
Patterson-Ballagh Corp.
Penberthy Injector Co.
Petroleum Engineering, Inc.
Petroleum Equipment Co.
Petroleum Iron Works Co.
Pickering Governor Co., The
Pittsburgh-Des Moines Steel Co. 105
Pittsburgh Equitable Meter Co.
Pittsburgh Screw & Bolt Corp.
Pittsburgh Steel Products Co.
Plymouth Cordage Co. 106
Pomona Pump Co.
Powell, William, Co.
Power Mfg. Co., The
Power Piping Co. 110
Prescott Co., The
Prest-O-Lite Co., Inc., The
Public Service Co.
Pure Oil Co., The

R

Reading Iron Co.
Reading-Pratt & Cady Co., Inc. 6
Reda Pump Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Reo Motor Car Co.
Republic Steel Corp. 48A-48B
Republic Supply Co.
Robinson Orifice Fittings Co. 70
Roebling's John A., Sons Co.
Ross-Meehan Foundries Co. 104

S

St. Louis Cordage Mills
Shaffer Tool Works
Sherwin-Williams Co.
Smith, A. O., Corp.
Smith Bros. Construction Corp. 104
Smith Separator Co.
Smooth-On Mfg. Co.
South American Oil Reports, Inc.
South Chester Tube Co. 83
Southern States Co., Inc., The
Southwestern Construction Corp.
Spang, Chalfant & Co., Inc.
Sperry-Sun Well Surveying Co. 108
Star Drilling Machine Co.
Sterling Steel Castings Co.
Stockham Pipe & Fittings Co.
Stoody Co.
Sullivan Machinery Co.
Sureshot Torpedo Co.

T

Tagliabue, C. J., Mfg. Co. 31
Taubman Supply Corp.
Taylor Forge & Pipe Works
Technical Products, Inc. 111
Texas Electric Service
Texas Steel Co.
Thompson, J. D., Jr.
Timken Roller Bearing Co., The 53
Titusville Iron Works Co.
Toledo Pipe Threading Machine Co., The 109
Trackson Co. 29
Treolite Co.
Trimont Mfg. Co. 105
Truman Smith Const. Co., The
Truscon Steel Co.
Tube Turns, Inc.
Tulsa Boiler & Machinery Co.

U

Union Carbide & Carbon Corp.
Union Wire Rope Co. ....Inside Back Cover
United Engineers & Constructors
United States Steel Corp.
Universal Oil Products Co. 23

V

Vacuum Oil Co. 30
Vellumoid Co., The
Vickers Machine Co.
Victaulic Co. of America 5
Victor Balata & Textile Belting Co.
Vogel, Felix A.
Vogt, Henry, Machine Co.

W

Wagner Electric Corp.
Wailes, Dove-Hermiston Corp.
Wall Rope Works, Inc.
Walworth Co. 1
Warren Petroleum Co.
Waukesha Motor Co.
Webster Engineering Co., The
Westco Pump Corp.
Westcott Valve Co.
Western Gas Construction Co., The
Westinghouse Electric & Mfg. Co., The
Wichtex Machinery Co.
Wickwire Spencer Steel Co.
Wico Electric Co.
Williamsport Wire Rope Co.
Wilson-Snyder Mfg. Corp.
Winkler-Koch Engineering Co., The
W. K. M. Co., Inc.
Worthington Pump & Machy. Corp.
Wright Manufacturing Co.
Wyatt Metal & Boiler Works

Y

Young Engine Corp.
Youngstown Sheet & Tube Co., The 2

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

VOL. 30. NO. 18. TULSA, OKLAHOMA, SEPTEMBER 17, 1931

Copyright, 1931, by The Petroleum Publishing Co.

Table of Contents

SPECIAL ARTICLES

May Set Definite Figure for East Texas 11
By Andrew M. Rowley
Representatives of various states to confer with Governor Sterling and Railroad Commission Friday.

Recommend 2,376,000 Barrels per Day 13
By James McIntyre
Public Service Commissioners of Oklahoma, Kansas and Texas and Oil States Advisory Committee agree on allowables.

Five Texas Organizations Merged 13
By L. E. Bredberg

Carbonic Products Makes Refrigerant from Natural Gas 14
By W. T. Ziegenhain

Why Adequate Oil Legislation Failed 15
By Earl Oliver
Inability of petroleum industry to agree upon sound, constructive program influenced action of Texas legislators.

Two Oklahoma Refineries Install Waste Water Recovery Plants 16-17
By C. O. Willson

Drill Must Ensure Future Oil Supply 18
By L. G. E. Bignell
East Texas will require thousands of wells to develop it fully.

White Star Plant Adds Simple and Compact Rectifier 22

Call for Federal Regulation Discussed 24
By James G. Stanley
Says monopoly is inevitable and serious waste will continue unless flush production is checked.

Close-up of Soviet Oil Field Workers 30
By L. G. E. Bignell
Returned American engineer tells of failure to grasp technical problems.

Oil Producers Sales Agency Formed in East Texas 30
By L. E. Bredberg

Darst Creek Discovery Important Find 32
By B. D. Stevenson

Imperial Oil Explains Turner Valley Situation 84

Gum Problem Increases in Importance 102
By Robert C. Conine
Greater demand for antiknock gasolines stresses necessity of additional data on relationship to motor performance.

East Texas Situation Features A.I.M.E. Meeting 102

FIELD OPERATIONS

Late Fields 24
East Texas 25
By L. E. Bredberg
West Texas, North Texas and Panhandle 26
By L. E. Bredberg
Oklahoma 34
By W. A. Spinney
Kansas 35
By W. A. Spinney
North Louisiana, Arkansas, Mississippi 37
By J. R. Crumpton
Gulf Coast 38
By Neil Williams
Southwest Texas 40
By B. D. Stevenson
Rocky Mountain Area 43
By Tolbert R. Ingram
Canada 43
By Victor Lauriston
California 44
By L. P. Stockman
Central West, Kentucky, and Michigan 48
By George A. Whitney
Eastern Fields 48
By Staff Correspondent
Corning Gas Field 84
By Special Correspondent

REFINING AND MARKETING

Oklahoma Cylinder Stocks Advance 12
By C. O. Willson
Low cold test grade of bright stocks now quoted at 20 cents. Natural and refinery gasoline weak.

Technical Questions Answered 58
By C. K. Francis, Ph.D.

Chicago Market in Muddled Condition 76
By Robert C. Conine

Eastern Prices Continue Upward Trend 78
By A. E. Mockler

Brief Items for Petroleum Refiners 89
Natural Gasoline Manufacture 90
Refinery and Crude Prices 92-93
Tank Wagon Quotations 94
Of Interest to Sales Departments 95

DEPARTMENTS OF GENERAL INTEREST

The Advertisers' Index 9
Personal Paragraphs About Oil Men 49
Natural Gas Developments 50
Oil Industry Equipment and Supplies 52
Classified Want Advertisements 77-79
Oil Securities Market 96-97
Crude Petroleum Statistics 112

BRANCH OFFICE CORRESPONDENTS

L. E. Bredberg, 601 Petroleum Building, Fort Worth, Tex.
Robert C. Conine, Room 1416, 6 North Michigan Ave., Chicago, Ill.
J. R. Crumpton, 540 Ricou Brewster Building, Shreveport, La.
Paul A. Elliott, Chronicle Office, Muskegon, Mich.
Tolbert R. Ingram, 130 State Office Building, Denver, Colo.
Charles E. Kern, 606 District National Bank Building, Washington, D. C.
Victor Lauriston, 35 Stanley Ave., Chatham, Ontario, Canada.
B. E. V. Luty, Bessemer Building, Pittsburgh, Pa.
A. E. Mockler, Rooms 1919-21, No. 154 Nassau Street, New York, N. Y.
B. D. Stevenson, 1504 Milam Building, San Antonio, Tex.
L. P. Stockman, 522 Union Oil Building, Los Angeles, Calif.
Leon H. Walter, Oil City Derrick, Oil City, Pa.
George A. Whitney, Box 98, Main Post Office, Toledo, Ohio.
Neil Williams, 1316 Second National Bank Building, Houston, Tex.

Refinery Section Starts on Page 76

May Set Definite Figure for East Texas

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Representatives of Various States to Confer With Gov. Sterling and Railroad Commision Friday. Drilling Active

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

Much of the uncertainty regarding East Texas production is expected to be cleared this week when official representatives of the various Mid-Continent oil states confer with Governor Sterling and members of the Railroad Commission of Texas at Austin. The meeting, scheduled for Friday morning, will discuss the schedule of crude oil production for the various states approved last Friday at meetings of representatives of the various states at Oklahoma City. Governor Sterling has indicated he and the Railroad Commission will give favorable consideration to the schedule, which provides for a total daily output for Texas of 900,000 barrels.

It is claimed this schedule of production can be made effective immediately through orders issued by the commissions of the different states. In dealing with the matter in Texas, facts relating to physical waste in the different flush fields, caused by water encroachment should production not be curtailed, will be placed before the governor and members of the Railroad Commission.

East Texas is following the trend predicted under the order allowing 225 barrels daily for each well. During the past week locations were made for 164 additional wells as compared to 90 for the week before. There were 95 wells completed as against 60 the previous week and there are 539 wells drilling in that area. Completions are being reported at the rate of about 100 per week. It is not hard to visualize the outcome of such intensive drilling with 225 barrels added daily to the production for each well completed.

Operators are inclined to view the outlook in a more favorable light. It is believed sentiment is crystallizing on the matter of making a definite allowable production for East Texas regardless of the number of wells completed and that this figure should not exceed 400,000 barrels daily. The output of the area last Saturday, as officially reported, was 410,609 barrels. Low prices of gasoline from the area are affecting the refined oil market in other sections of the country.

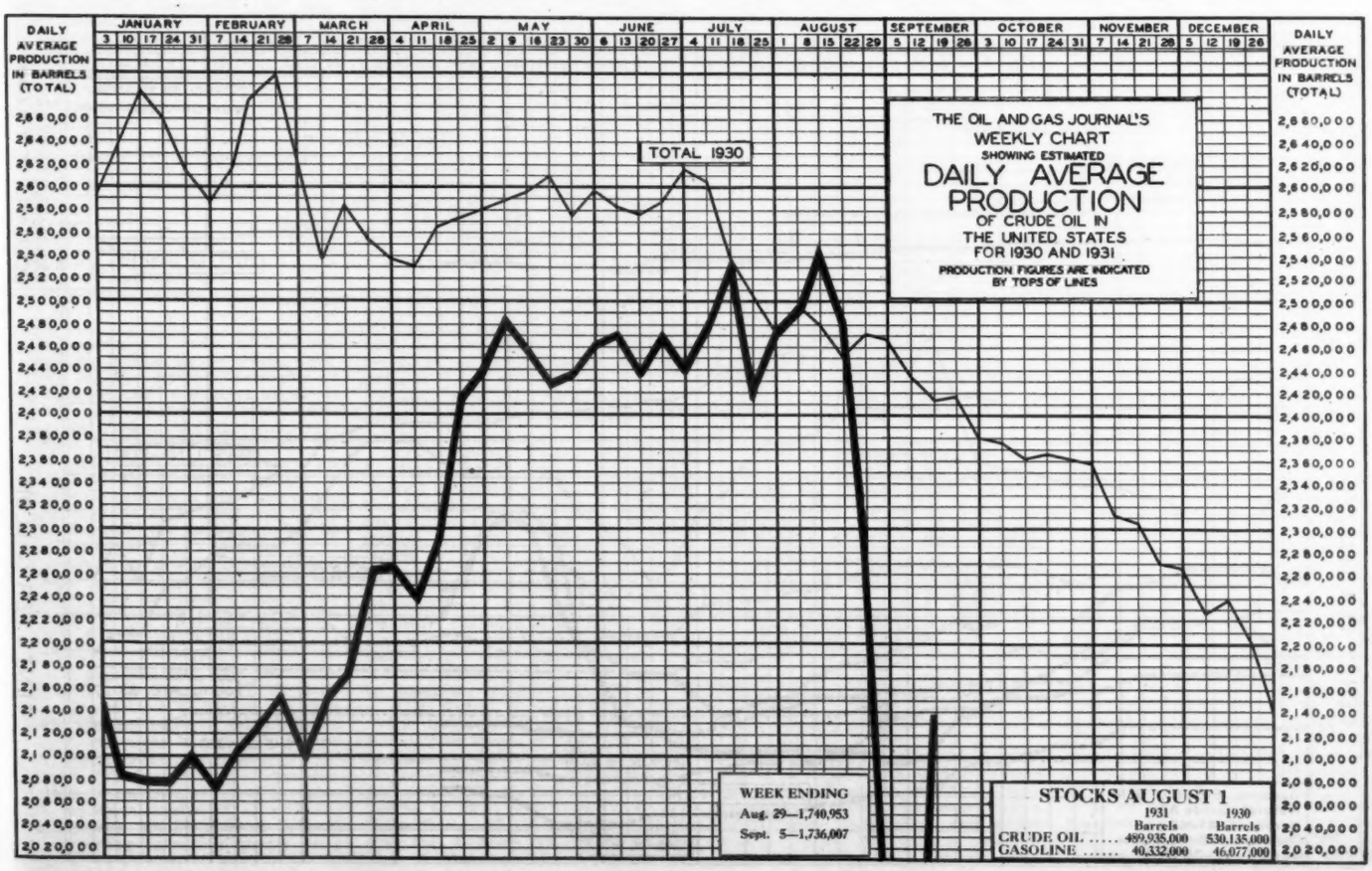
PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended September 12 and a comparison with the previous week follows:

	Sept. 12	Sept. 5
Oklahoma—		
Oklahoma City	7,585	9,310
Seminole-St. Louis	53,410	50,720
Remainder of State	194,940	196,205
Total Oklahoma	255,935	256,235
East Texas—		
Kilgore	158,968	(*)
Lathrop	97,351	(*)
Joiner	141,452	(*)
Total East Texas	397,771	(*)
West Texas	206,074	205,553
North Central Texas	76,208	75,657
Texas Panhandle	59,139	61,271
East Central Texas	57,359	53,325
North Louisiana	29,880	29,785
Arkansas	38,095	37,890
Kansas	100,420	98,515
Total Mid-Continent area	1,220,881	818,231
Gulf Coast	143,587	145,900
Southwest Texas	61,522	63,985
Eastern	111,000	109,000
Rocky Mountain area	91,150	93,891
California—		
Santa Fe Springs	62,000	61,750
Long Beach	78,750	77,500
Playa Del Rey	20,500	21,150
Elwood	26,250	26,250
Kettleman Hills	61,500	62 250
Remainder of State	260,750	256,100
Total California	509,750	505,000
Total United States	2,137,890	1,736,007

*Field shut in.

Increase, 401,883 Bbls. Daily



Oklahoma Cylinder Stocks Advance

Low Cold Test Grade of Bright Stocks Now Quoted at 20 Cents. Natural and Refinery Gasoline Weak

By C. O. Willson

In line with the trend which has been under way in eastern lubricants for several weeks, there was a general advance in Oklahoma oils during the past week. Steam refined stocks and bright stocks shared in the advances.

The 150-160 D color zero grade of bright stock advanced to a general quotation of 20 cents with the usual downward scale for the higher cold test material. The new prices represented a 3-cent increase for the week and mark a continuance of an upward swing from late July when prices had slumped to around 12 cents for the 150-160 grades of Oklahoma bright stock.

The price trend in the remainder of the Oklahoma refinery market was generally downward when any changes were made. Refinery gasolines and natural gasolines were especially weak. All of last week the buyers were dominating the gasoline market. Oklahoma refiners and natural gasoline manufacturers generally were not in a position where they were compelled to sell but they were unable to ignore the rapid decline in Texas quotations and a majority of the operators were forced to give concession in open market sales. In Oklahoma, the first of the week, the U. S. Motor grade was quoted over a price range of 3½ to 4½ cents, most of the larger refiners in the State reducing their quotations to the latter level from 5 cents last week. The low of this price range could be shaded at least one-fourth cent, basis Group 3, at inland Texas refineries, the first of the week.

The same situation applied to natural gasolines. Oklahoma manufacturers continue to be well supplied with orders but the weakness in the Texas markets was reflected in Oklahoma quotations. It is believed that buying of a substantial nature, some of which was placed last week, will aid the Texas situation and thus bring a better tone to the entire Mid-Continent market before the end of the week. All grades were quoted at 3⅞ to 4 cents in Oklahoma on Tuesday. Texas prices were from one-fourth to one-half cent less.

There were no important changes in kerosene, distillate, gas oil and fuel oil market. Several buyers reported that they were able to obtain price concessions in other areas but Oklahoma quotations were generally firm. Some products, particularly the low cold test and low flash oils are practically unobtainable for spot movement in the Oklahoma market.

Lubricating Oils

The advance in Oklahoma and other western lubricating stocks is the most encouraging development in several months for the manufacturers. A decline extending over the greater part of the past year, centering in cylinder stocks had brought quotations to the lowest levels in several years. Recent prices were out of line with the cost of production. Buyers apparently figured that the low crude oil price schedules of a few weeks ago assured low lub oil quotations overlooking the fact that in the production of bright stocks and neutral oils, the manufacturing and not the raw material cost is the most important factor. In the marketing end, the ridiculously low refinery prices threatened to bring chaos in retail sales. Price cutting has been general both in sales to dealers and consumers.

Manufacturers in Oklahoma and other areas have been reducing their stocks, particularly bright stocks by curtailing their output due to the low prices received. Recently there has been a marked increase in demand. One of the reasons for the steady decline in Mid-Continent lubricants was the willingness of Pennsylvania refiners to sell their stocks and finished oils at low prices. The curtailment of Pennsylvania grade crude oil

(Continued on Page 103)

REFINED MARKET BAROMETER

The fear that East Texas will again provide cheap crude accounts for the substantially lower gasoline prices throughout the Mid-Continent and this in turn is causing a weakening in the market in other areas. This weakening in gasoline prices is not reflected in the balance of the refined oil list and this fact is taken as substantiating the belief that gasoline prices might swing upward again in the near future. Lubricants, particularly bright stocks have shown a decided improvement. Fuel oil bids on government inquiries have carried higher quotations on material to be supplied along the East Coast during 1932 and this has helped to stiffen the fuel market at all points.

Mid-Continent—Refinery gasoline and natural gasoline prices declined 1½ cents within two weeks and little encouragement is being offered in the current trading, except that in making this sudden drop many believe quotations have been made below a reasonable level and a reaction is likely to be effected shortly. Neutrals and bright stocks were advanced early in the week.

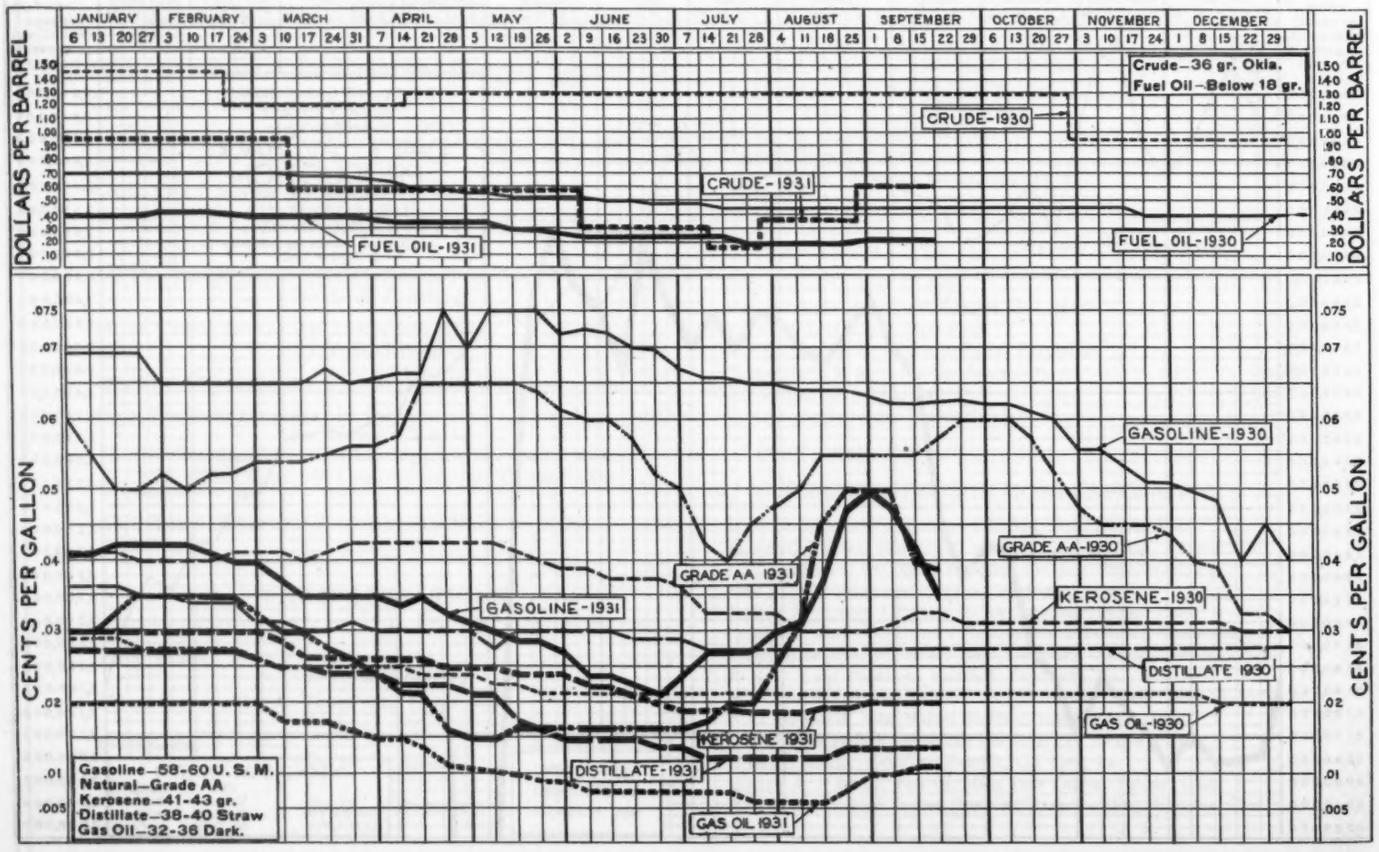
Atlantic Seaboard—The steady improvement in the statistical position of refiners along the Eastern Seaboard has strengthened the entire list of products. Fuel oil and kerosene are particularly strong.

California—Natural gasoline prices declined and refinery gasoline was more freely offered, while the balance of the list remained unchanged.

Pennsylvania—Bright stocks and heavy neutrals were advanced.

Chicago—The weakening in the retail market caused gasoline prices to slip back seriously. The expected advance in the gasoline tank wagon and station prices failed to materialize and this is taken as the excuse. Kerosene also weakened while other products remained the same.

Gulf Coast—The market is inactive awaiting a more definite trend of developments in the East Texas area.



Recommend 2,376,000 Barrels Per Day

Public Service Commissioners of Kansas, Oklahoma and Texas and Oil States Advisory Committee Agree on Allowables

By James McIntyre

It was decided that 2,376,000 bbls. per day was a sufficiency of crude oil production in the United States after an all-day session of representatives of the public service commissions of the States of Kansas, Oklahoma and Texas held in Oklahoma City on Saturday, September 12.

The figure was arrived at by public service commission members and representative oil men acting as a committee consisting of Thurman Hill, Public Service Commission of Kansas; Paul A. Walker, chairman of the Corporation Commission of Oklahoma; Cullen F. Thomas, representing Governor Ross Sterling; Cicero Murray, chairman of the Oil States Advisory Committee; A. W. Peake, vice president of the Standard Oil Co. of Indiana; W. S. Farish, president of the Humble Oil & Refining Co.; R. M. Young, president of the Carter Oil Co.; Thomas F. Lydon, vice president of the Shell Petroleum Corp.; Rush Greenslade, vice president of the Gypsy Oil Co.; E. B. Reeser, president of the Barnsdall Oil Corp. and president of the American Petroleum Institute; Wirt Franklin, president of the Wirt Franklin Petroleum Corp. and president of the Independent Oil Men of America; W. H. Cooley of California; Van S. Welch of New Mexico; Warwick M. Downing of Colorado, and Earl M. Cox of Wyoming, the last four named being members of the Oil States Advisory Committee, and William N. Davis, vice president of the Phillips Petroleum Co. and president of the Mid-Continent Oil and Gas Association.

It was decided that if the figures were acceptable to Governor Sterling and the Texas Railroad Commission that they would be put into effect on October 1 and continue in effect until December 31, inclusive. It was later reported by Cullen F. Thomas, representing the Texas governor, that Governor Sterling had approved the findings of the committee and the commissioners of the several states.

The production of 2,376,000 bbls. a day is allocated to the states as follows:

PRODUCTION BY STATES	
Texas	900,000
Oklahoma	546,000
California	500,000
Kansas	110,000
Eastern states	108,000
New Mexico	50,000
Other Rocky Mountain states	52,000
Arkansas and Louisiana	110,000
Total	2,376,000

The meeting was called by Thurman Hill of the Kansas Public Service Commission for the purpose of arranging an equitable program of conservation of petroleum in the States of Kansas, Oklahoma and Texas. At the same time Cicero I. Murray, chairman of the Oil States Advisory Committee, called the members of his committee together to consider the question of world production and to assist in an advisory way in the proceedings of the meeting called by Commissioner Hill.

In opening the session, which was well attended by leading Mid-Continent oil executives and individual oil men, Commissioner Hill stated the object of the meeting in a short prepared address.

Potentials

"It is suggested each state represented here reserve to itself the right to determine upon methods to be used in ascertaining the true potential output of each oil well within the limits of the several states," said Commissioner Hill.

"Much criticism in the past has been directed at the methods used to determine the actual production of wells and this criticism can be removed by each state insisting upon fair gauges being made.

"It would be wise for the several commissions to interchange ideas as to potential methods so eventually the gauging of wells would be uniform throughout the Mid-Continent area.

"We make this suggestion for consideration in the adoption of more uniform potential taking. The taking of oil potentials, under most methods used in the past, has resulted in greatly inflated estimates of the amount of oil that could be produced. These exaggerated figures have been most destructive to the price of crude oil and have assisted in the rapid decline of values of oil properties in general throughout the United States.

"The true potential of any pool should be the amount of oil that could be produced by simultaneous and continued operation of its wells. This operation should be in the manner which would give the greatest recovery of oil over the life of the field, with tests continued after the accumulated head had been removed. Conditions in different fields vary as to the time to remove the accumulated head of oil from new or shut-in wells but 48 hours continued operation could usually be expected to reduce pressures and flows to normal in open wells.

"At present the tendency is to drill wells too deep, in the effort to get the greatest potential, which frequently is injurious to individual and group wells.

"Potentials should be established by a uniform method which adheres to the conditions under which the wells can be most economically and efficiently operated.

"At this particular time it is more important to the industry and the public that we agree on allowables rather than methods each state proposes to take to ascertain how each oil well in field shall be gauged. That is a matter all of us can trust to the fairness of the oil regulatory bodies within the several states.

Allowables

"In order to secure a fair price for crude oil now being produced in the Mid-Continent fields the several states by their oil regulatory bodies here assembled pledge themselves to restrict the output of crude oil in said states as follows:

	Daily maximum (bbls.)
Texas	800,000
Oklahoma	550,000
Kansas	150,000
Arkansas	37,000
Louisiana	50,000
New Mexico	45,000
Rest of Rocky Mountain district	52,000
Eastern states	108,000
California	500,000
Importers	100,000
Total	2,392,000

"These suggestions will permit some withdrawals from storage which is admittedly larger than necessary for the good of the industry.

"The amounts set out herein are submitted from figures obtained from various reliable sources. However, it is not intended as being an arbitrary plan, but more as a guide to assist the states in arriving at allowables satisfactory to each state. It is important before we adjourn to pledge ourselves to an equitable allowable output.

Effective Date

"By and with the consent of the governors of our respective states, or the regulatory bodies in charge of oil conservation law enforcement, these allowables shall become effective on the fifteenth day of September, 1931.

Question of Price

"The primary purposes of the oil states in curtailing production to conform to market demands are:

"1. To prevent physical waste.

"2. To secure to the producer a fair price for his crude, and to the refiner and distributors a reasonable return.

"3. More royalties and rentals for the farmer, and

"4. Steady tax revenue for the states.

"Five years ago the mention of price in a meeting of regulatory bodies would have caused shivering and shuddering of spines. Conditions today require direct action. The federal court decisions forbidding states to fix oil prices are based on erroneous conclusions that oil and its derivatives are not tinged with public interest. After the past years' oil activities only an indifferent court, insensible to what is going on about it, would deny the public interest in oil. For instance, there are almost as many users of gasoline as of electricity—and the courts do not hesitate in permitting the states to regulate electric rates through our commissions.

"The greater reason for the several states to insist on a fair price is that oil is an irreplaceable resource.

"The price at which American producers can afford to sell oil is subject to argument and actual cost of producing varies between flush and settled pools.

"Perhaps the most authentic and exhaustive study of production costs is contained in the report of the U. S. Tariff Commission (Senate Document 279 to the Seventy-first Congress, third session).

"After a long and thorough study of costs of producing oil by large and small producers in the Mid-Continent area this commission reported average costs of a barrel of oil delivered aboveground at wells to be $1.10. Profits must come from higher prices than actual cost of production. The common understanding of price has been based on 36 gravity oil usually with 2 cents added for each degree above and 2 cents subtracted for each degree below.

"If we here assembled can agree upon the maximum amount of oil each state will be permitted to produce, and have co-ordination in like manner with im-

(Continued on Page 100)

TEXAS RAILROAD COMMISSION AWAITING OUTCOME OF ORDER

AUSTIN, Tex., Sept. 14.—The Railroad Commission Monday had issued no supplemental order on East Texas production, after reports showed the output for last Saturday was in excess of 411,000 bbls. The commission had not been informed of any action by military authorities to hold the production below 400,000 bbls. Under Governor Sterling's verbal statement the field would be held to this limit.

Chairman C. V. Terrell of the Railroad Commission has made an inspection of the field.

Adjutant General W. W. Sterling was on his way Tuesday to the martial law zone, but said his visit had nothing to do with fixing or changing the field output.

Since its original order fixing a 225-bbl. production limit on each well, the Railroad Commission has made one supplemental order restricting the 20-acre unit proviso for new drilling.

FIVE EAST TEXAS ASSOCIATIONS AFFILIATE IN ONE ORGANIZATION

By L. E. Bredberg

DALLAS, Tex., Sept. 12.—Five Texas oil and gas organizations, aggregating 1,235 members, were merged here into the Texas Oil and Gas Conservation Association.

Charles F. Roeser of Fort Worth was elected temporary president of the organization.

Each of the organizations, the Texas Oil Emergency Committee, East Texas Steering Committee, North Texas Oil and Gas Association, San Antonio Petroleum Club and the East Texas Home and Land Owners Association, contributing membership to the association will continue to function under its original identity.

W. L. Todd of Dallas, chairman of the oil emergency committee, was elected temporary chairman at the general meeting, with Dennis Mason of Austin as secretary pro tem. Executive committee members named by the organizations are: Oil emergency committee, Charles Roeser of Fort Worth, W. L. Todd of Dallas and E. L. Smith of Mexia; steering committee, Jake Hamon of Longview, W. E. McKinney of Tyler and R. L. Wheelock of Corsicana; North Texas Oil and Gas Association, P. B. Flynn, C. B. Long and M. W. Blair of Wichita Falls; East Texas Home and Land Owners Association, Col. J. Lewis Thompson of Longview, J. Malcolm Crim of Kilgore and Fred Stuckey of Longview, and San Antonio Petroleum Club, Frank Zoch, A. L. Buchanan and Dr. F. L. Thomson.

The meeting was called by Col. J. Lewis Thompson, former state senator, and operator, who advocated that a new organization should be formed immediately to carry on the fight of the independent operators.

Roeser Condemns Commission

Charles F. Roeser of the Roeser & Pendleton Corp., stated he believed that the independent operator could not survive without conservation in the fields. "We have been helped by Governor Murray and Governor Sterling in getting the price of oil raised from 10 cents to 68 cents per barrel, but this price can only be maintained and raised by further stabilization," said Mr. Roeser. He condemned the Texas Railroad Commission for "writing the worst law possible" for the East Texas fields, stating that it had "failed us in time of need." He made a plea for an appointive oil and gas commission for the State.

The fight, as pointed out by Mr. Roeser, is not between the independents and major companies, but between some independents allied with some majors, against other independents and majors who are against any form of conservation and stabilization, and the inde-

(Continued on Page 32)

Carbonic Products Makes Refrigerant From Natural Gas

* * * * * *

By W. T. Ziegenhain

"Dri-Frost," a refrigerant and a product of natural gas was recently introduced to the Tulsa trade territory by the Carbonic Products Co., Inc. A plant of 12,000 pounds capacity daily has been located in Tulsa and has been so designed as to allow for doubling its output at such time as conditions warrant by simply duplicating a portion of the equipment.

In making this statement, Stanley A. Brander, vice president and general manager of the company, said he did not mean to infer that the profits from such an undertaking would justify it now nor is there a market for such an output at present but that the convenience in the use of the product would no doubt eventually prompt its general acceptance and use.

The product is unique principally because it is made from the flue gases during the burning of natural gas. Briefly described, the process simply involves isolating the carbon dioxide from the rest of the flue gases and compressing it into a liquid state. Then it is allowed to expand within an enclosure to form a snowlike mass as a result of its own refrigerating effect. This snow is then compressed into standard blocks and is ready for the market.

Advantages of Its Use

"Dri-Frost" or solid CO_2 has a refrigerating effect of 275 B.t.u.'s compared to 144 B.t.u.'s for water ice, it leaves no residue, may produce temperatures considerably below water ice and is relatively light in weight. Because of these facts its usefulness is expected to be greatly increased over the near future. At present about 90 per cent of the solid CO_2 being produced in the United States is being consumed by ice cream manufacturers for the preservation of their products during transit. The small carton containing a small cube of this material is a convenient substitute for the bulky wooden freezer, cracked ice and salt of not many months ago.

About 6 per cent of the remaining production is utilized in the preservation of meats and fruits while the rest finds its way into many industries and laboratories.

Size of New Industry

At present there are 25 plants scattered over the United States and their estimated output has been placed at 85,000,000 pounds in 1931. These have been located principally with respect to the market because the transportation of the commodity involves a high cost. At the same time, it is necessary to manufacture the material in relatively large quantities at any one location in order to effect a low production cost. For these reasons but one plant may be usually justified within a given trade territory and places emphasis on the statement generally heard that "the field of making solid CO_2 as a refrigerant, has become attractive because of the convenience in the use of the product rather than the results of the investigation of the profits afforded."

* * * *

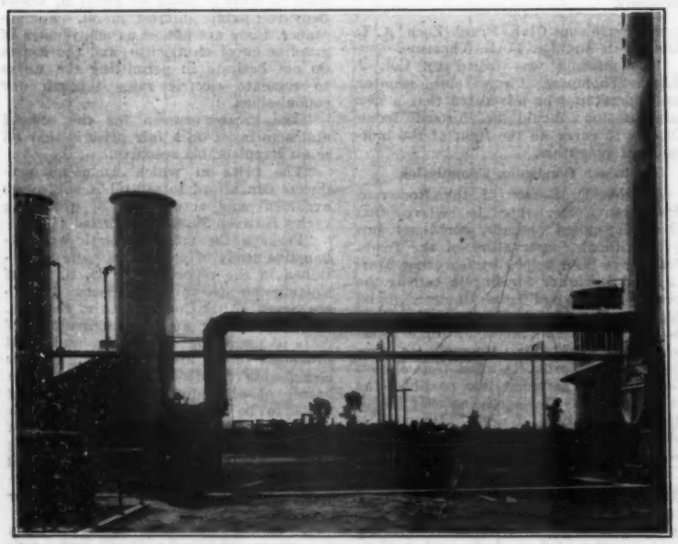
In reviewing some of the factors which offer an enlarged future for the new industry, the Carbonic Products Co. has considered the use of the product in the homes as well as in the industries. It is possible to place a small cube of this material inside a cartridge and by controlling the rate of dissipation, produce any desired temperature within the household refrigerator. This control is simply one of regulating the pressure within the cartridge by a valve which in turn determines the rate at which the solid is converted into a gas. Another use for the product fast coming into prominence, particularly along the Pacific and East Coasts, is the preservation of sliced meats and ripe fruits. The fact that solid CO_2 has a melting point of —109.6° F. the meat and fruit may be held at temperatures making them rigid. When the process of preservation is controlled the cell structure of the meat and fruit is not damaged as in the case of ordinary freezing. The fruit may then be shipped after ripening and the natural taste is maintained. In the case of the meat the benefits of the process are very apparent. Besides keeping the meat "fresh" and thus improving its taste the meat is made more tender.

Use of the material as a refrigerant instead of ice is found convenient for picnic parties, in many laboratories where low temperature investigations are made, for cooling the air in automobiles during hot days, and may eventually cool our homes as a result of combining a cooling system with the heating system. This latter problem is undergoing an intensive investigation along many lines. The use of solid carbon dioxide seems to offer the simplest means, es-

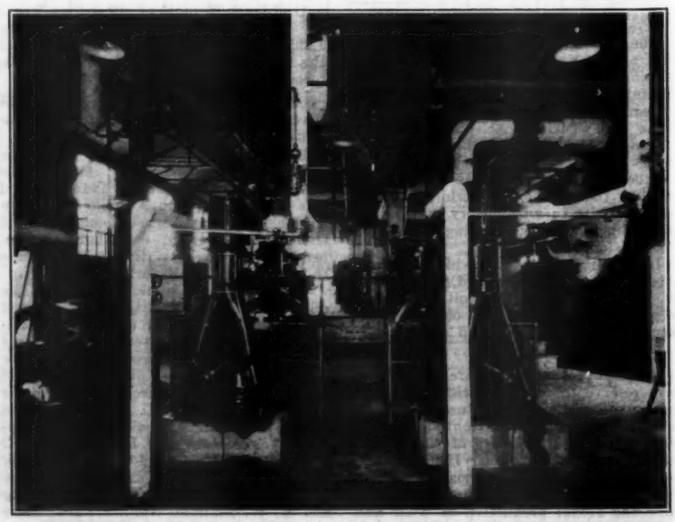
(Continued on Page 98)

Absorption and distillation unit in the Tulsa plant of the Carbonic Products Co., Inc. The taller of the two towers provides for the absorption of the CO_2 in triethanolamine. The still for recovery of the gas is shown to the side of the absorber and on the end is shown the gasometer.

* * * * * * * *



Boiler, steam economizer and gas scrubbers. The gases are drawn from the flue just above the breeching and is led through the scrubber before passing them through the absorber.



General view of interior of compressor room. In the foreground are the three compressors and in the center rear may be seen the snow chamber and press used to form the solid cake of Dri-Frost.

Why Adequate Oil Legislation Failed

Inability of Petroleum Industry to Agree Upon Sound, Constructive Program Influenced Action of Texas Legislators

By Earl Oliver

One need not go into Texas to sense the general disappointment felt throughout the industry as to the inadequacy of the legislation passed at the special session or the lack of confidence in the potency of any regulations that can be based thereon. That additional legislation will be required not only in Texas but in other states and in the Federal Congress as well, before the oil industry can function to the best interests of society is a conclusion that cannot be escaped if the facts are analyzed and squarely faced. If the reason for failure in Texas is properly understood perhaps that will serve to guide the industry and government in their further efforts.

In the numerous interviews granted, after the preliminaries were over the question invariably asked first was, "what, in your judgment, was the outstanding difficulty that stood in the way of securing adequate stabilization legislation at the recent session of the legislature?" Almost without exception in one form or another the reply came back promptly: "Divisions in the industry." "Controversy." "Lack of a program." "Conflicting recommendations." "Selfishness." "Greed." "Divergence of opinion." We had expected to hear "politics" and general recriminations against the motives and ability of the legislators, commission members, and state officials generally. Strangely enough there was little of that sort of explanation given—not that there was not occasion in spots for that charge; but to these men consulted, all of whom were close to the problem in some capacity or other, the cause went deeper than "politics." To them it was apparent, as it soon became apparent to the writer, that after all "playing politics" is a result rather than a cause. There would have been no occasion for playing politics if the issues had been clear.

One official said no two oil men agreed on a remedy. Another stated that the position of each advocate depended upon the manner in which he participated and gave as an illustration the owner of one 20-acre tract who endeavored throughout the hearings to have the regulations so phrased as to fit exactly his 20-acre situation. And that attitude was by no means confined to the owner of 5 and 20-acre pieces if the impression of that official is correct, although in some cases the motive was not so apparent.

Views of Legislators

Without doubt many of those engaged in the effort to secure legislation at Austin were actuated by a desire to formulate laws that would be more than a mere price improving expedient, that would actually provide for efficient extraction, conserve the oil and gas, and do it in a way that would pass some of the benefits on to the consuming public, not only in price but in assurance of a permanent supply. Unfortunately, however, those were not the aspects of the effort that were most strongly impressed upon the legislators and other officials. To them it appeared, in a large way, little more than a price increasing expedient, and that the first and more obvious effect would be increase of price to the consumer of gasoline. It would be a short-sighted office holder who would not keep this aspect in mind.

One official propounded the question: "If the oil industry, with all of its experts, cannot agree upon a program that will solve the problem, is it not too much to expect that a body of legislators made up of men who make no pretense of a knowledge of these subjects shall not be confused in the thing to do?" And he described at length the spectacle of recognized leaders of the industry, supported by eminent technical experts, disagreeing with each other as to the best methods of operating oil properties. "When," he asked, "men of this character differ, how can uninformed men know what course to pursue?" Not only were there conflicts of opinion on methods but the motives of each other were impugned.

Necessity of Sound Program

He stated that when issues, motives or effects were not clear, the natural tendency of the legislator or any other office holder is to decide in favor of what he is led to believe is the interest of the little man against the big one. There are more of them. If this be "playing politics" then the system of selecting office holders, not the individual, is at fault since our theory of government is built upon making its office holders responsive to the desire of the voters.

The burden, therefore, rests upon those seeking legislation to make the program sound and the issues clear. In this case the issue was between those who desired legislation to bring order and system into the oil industry, and those who merely desired to be let alone; between those who favor an equal chance for all as against those who believe in the survival of the fittest with much confidence in their own ability to come out on top in such a struggle.

Some of the participants learned in 1911 that society while long suffering will finally refuse to stand for jungle methods, and enlightened self interest impels them to attempt substituting something else. A burnt child fears the fire. A wholesome respect was developed in them for public sentiment. But there are other major oil companies that, having grown up since that time, have not yet learned that lesson. Eventually they will. The mills of the Gods grind slowly. It is, therefore, at this time, a struggle as to whether or not the law of the jungle shall prevail. Unfortunately the issues become so confused at Austin through propaganda and other means that instead of its appearing a struggle for system and order it was misrepresented by the opposition as a struggle for monopoly until various office holders became afraid to favor any measure sponsored by the larger group.

Protecting the Little Man

If a lesson is to be learned out of this experience it is that before the oil industry can hope to be successful in securing adequate legislation it must formulate a program not only fair as between operators but advantageous to society in that it both conserves the resources and protects the consumer. It must be such a program as will command united support of the industry or be so clear in its purpose and effects that the motive of those who oppose it will be obvious. It must be such a program as will permit legislators to enact and public officials to enforce with every confidence that their constituents will approve when election day comes round. It requires sound principles as a basis and education as a driving force. Such a legislative program as is necessary to save the American petroleum industry cannot be enacted in the face of the extensive mergers taking place unless there is a well informed public opinion that is able to and does understand that the proposed legislation is in no sense an aid to monopoly but on the contrary is a protection against it. A program of law and order will save and protect the little man, whereas there is nothing that will destroy him more quickly than perpetuation of the law of the jungle under which the industry is now being operated.

That such a legislative program is needed for the protection of the little man could not be more forcefully illustrated than was done in the East Texas area where martial law alone saved him and much of the industry elsewhere from ruin. The necessity of that action to bring order out of chaos illustrates the inadequacy of the existing law on oil and gas in its present form to take care of the situation. Clearly the existing methods and machinery under that law were incapable of preventing grave disorders.

Whatever the final judgment of legal technicians may be, public sentiment is disposed to react favorably to its rulers who regard the obligations to observe the functions of the State of greater moment than forms and technicalities of the law. One need have no sympathy with Sovietism or Fascism and yet realize that they are mere present day examples of the direct action that society takes, and has always taken, to correct its ills when the regular established procedure becomes too slow and cumber-

(Continued on Page 100)

ANALYZING THE PRESENT SITUATION

Believing the present condition of the petroleum industry is due to a general lack of understanding, particularly among legislators, of the engineering and legal principles involved in the efficient production of oil and gas, The Oil and Gas Journal has arranged with Earl Oliver, chairman, Unit Operation Committee of the American Institute of Mining and Metallurgical Engineers, and W. P. Z. German, general attorney of the Skelly Oil Co., to prepare a series of analyses of these principles and point out ways by which they might be applied in the several states.

The series of articles is designed to analyze the engineering, legal, economic and political difficulties that interfere with stabilizing the petroleum output in the East Texas fields. The analyses will be constructive and sympathetic but frank and exhaustive.

Accompanying is the preliminary article of the series. Mr. Oliver at this time is in the East checking data and obtaining views of outstanding leaders of the industry and Government. Other articles of the series will be published upon his return to Oklahoma.

The series of six articles on "Stabilizing the Petroleum Industry," prepared by Mr. Oliver and Mr. German and published in The Oil and Gas Journal beginning July 23 and ending August 27, attracted world-wide attention from the petroleum industry. Because of the intense interest in East Texas, the forthcoming series should be of particular value to every person engaged in the oil business.

Two Oklahoma Refineries Install Waste Water Recovery Plants

* * * * * *

By C. O. Willson

The problem of handling water used in refinery processing is being solved by two Oklahoma companies with recovery plants. The units which have been operated for several weeks have not only materially reduced the quantity of water required for refinery operation but also have greatly simplified the disposal of any waste water.

To most refiners, what to do with contaminated water after plant use is primarily a matter of disposal rather than reutilization. This problem which is as old as the refining industry, has greatly increased in importance in recent years. Some of the newer crude oil supplies have been high in sulphur content with other objectionable compounds and the more complicated refinery processes especially cracking have tended to increase the quantity of waste water. The greater stress given to chemical purity in all the refined products has also been reflected in the impurity of used waters.

Federal, state and city governments and private property owners have become directly concerned through the supposed pollution of streams and other water supplies and many refinery owners have constantly been faced with the threat of legal difficulties through the disposal of their waste waters. In many cases the complaints made are based on misinformation there being no actual pollution of outside water supplies. However, this fact has not prevented the complaints from being one of the serious worries of many operators.

Acting individually and through associations, refinery owners have co-operated with government officials in making a study of this problem with the view of doing away with all causes for complaint. As these studies have progressed,

* * * *

it has become more and more apparent that the only final solution is for the operator to make his refinery self contained in the production and utilization of water as it has in all other important phases of plant operation. By this is meant the operator must so control his operation that he is not only assured a satisfactory water supply but any surplus which leaves the plant must be free from chemical impurities which might result in injury to persons and property belonging to others. In some cases this includes clearness.

Economy Phase

Aside from the disposal angle there is the economy phase which adds to the attractiveness of water recovery units. A number of refineries scattered throughout the refining industry have inadequate

Mixing and settling tank of the waste recovery system installed at refinery of an Oklahoma company. Sludge pit is shown in foreground.

* * * * * * * *

or expensive sources of water supply. The fact that large quantities of used water are leaving many of these plants through sewers or open streams which could be recovered is comparable to the practice a few years ago of permitting waste gases to be dissipated in the air. These gases are now being recovered, the gasoline being used as motor fuel material while the fixed gases are utilized as fuel.

Installations such as those made at the two Oklahoma refineries are practical wherever water costs are relatively high or stream pollution is prohibited. The water recovered comes largely from the water washing of gasoline pressure distillate and kerosene after sulphuric acid treatment. Other sources are tank drainings and steam condensate. In the case of one refinery which refines approximately 4,000 bbls. of crude oil daily this waste water amounts to about 75,000 gallons daily.

Two Types

The unit installed at one of the Oklahoma refineries is the steel settling tank and pressure filter type and the other incorporates a concrete settling basin and gravity filter. Each is adapted to the plant at which it is installed. The main equipment was installed by the International Filter Co., of Chicago and Tulsa.

As shown by the accompanying photographs and flow chart, the first type consists of a steel settling tank aboveground with pressure filters. In the other type the treating, settling and filtering, take

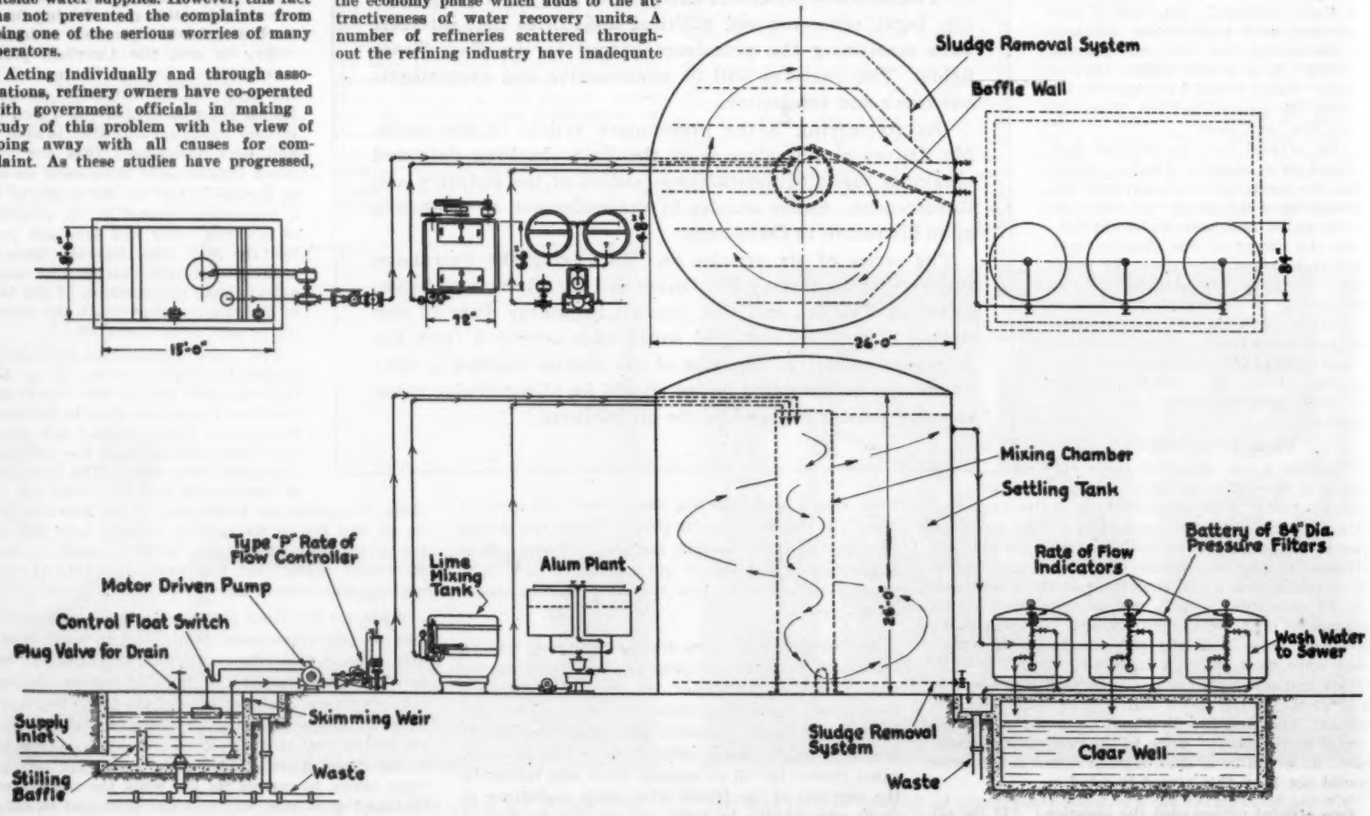


Diagram 1—Flow chart of waste water recovery plant of the steel tank type. Plant has a capacity of 12,500 bbls. daily.

place in connected sections of a concrete basin below the surface of the ground. The two methods are similar in operating principles the differences being confined to the mechanical features.

In both cases the refinery waste water from various sources in the refineries is received in an equalizing sump provided with a stilling baffle for assuring quiet entrance of the waste water into the receiving sump. The sumps have a skimming weir for convenience in skimming from the water such oil as floats upon its surface.

The skimmed water is then delivered to the treating plant where the treating chemicals are applied. Lime is added to neutralize the acidity of the water and to establish the desired alkalinity in the treated water. This is followed with sufficient alum to form a heavy floc of aluminum hydrate.

The heavy precipitate thus formed both adsorbs and absorbs the soluble and suspended oil and other organic matter, present in the water, carrying these substances down as a precipitate or sludge which settles to the bottom of the sedimentation tank or basin from whence it is removed by a suitable sludge removal system or by sludge blowoff valve. The settled water then flows to sand filters which remove the suspended solids remaining in the water after settling.

The result is a bright, clear, safely alkaline water which may be re-used for refinery cooling purposes and similar uses. The purified water will not, in every case, be colorless, nor free from taste and odor. It will, however, be free from all oil or tar in suspension or solution and noncorrosive.

Ordinarily, the reclaimed water will not be suitable for boiler feed use because it will contain a relatively large amount of dissolved mineral matter and is apt to be rather high in permanent hardness. If the purified water is to be disposed of in a public stream, further purification through activated carbon for the removal of taste and odor is necessary in order to comply with legal restrictions.

Description of Operation

Diagram 1 is typical of the steel tank waste water reclaiming plant having a capacity of 500,000 gallons of water daily. This plant consists of a receiving or equalizing sump, a booster pump for delivering the water from this sump to the treating plant. In the discharge line of the booster pump is installed a rate of flow controller to insure delivery of the water to be treated to the treating plant at a constant rate. The receiving or equalizing sump is provided with a float switch which automatically starts and stops the booster pump when predetermined high and low levels are reached in this sump. The sump is also equipped with a stilling baffle to assure quiet entrance of the water. The skimming weir for removal of oil and other suspended matter which floats on the surface of the water, is also shown.

The settling tank, into which the water is delivered by the booster pump, is provided with a centrally located downtake or reaction chamber having a retention period of approximately 15 minutes. The discharge of the water into this downtake is in such a manner as to create a rotary motion. The chemicals—lime and alum—are also delivered to this downtake in such a manner that they are thoroughly mixed with the entering water. The mixture of water and chemicals passes slowly down through the downtake to the bottom of the sedimentation tank, during which period the chemical reactions take place and the heavy sludge is formed.

Entering into the large outer compartment, the water rises slowly to the top of the sedimentation tank from whence it is removed to the filters. During the slow upward travel the bulk of the sludge formed as the result of the treatment settles to the bottom of the sedimentation tank—and is removed from this tank by means of a sludge removal system consisting of a pipe spider extending over the entire bottom of the tank.

Chemical Equipment

Chemical feeding equipment is provided for the feeding of lime and alum or other coagulants.

Hydrated lime is used to neutralize the acid. Because of its nature a specially designed feeder must be provided in order to maintain and deliver a uniform suspension of this material. The chemical feeder shown in the accompanying photograph provides for vertical agitation of the mixture. This method of agitation has been found most effective in maintaining a uniform mixture of the lime in the water in which it is suspended. The feeder also provides for the delivery of the lime in this tank by pick-up cups attached to and revolving with the agitators.

The alum or other coagulant is made up in solution form and is measured by means of an adjustable orifice box.

The discharges from the lime feeder and from the alum feeder are picked up by their respective pumps and delivered to the sedimentation tank.

Filtering System

From the sedimentation tank the treated and settled water flows through one or more pressure filters with piping so arranged as to permit backwashing of the filters with treated water when washing is required.

In order to assure uniform distribution of the water during the filtering operation and during backwashing, each filter is provided with an underdrain system consisting of a header with pipe laterals spaced 6 inches center to center, both header and laterals being drilled and tapped on 6 inch centers to receive umbrella distributing nozzles. This underdrain system after assembly in the filter is grouted in with concrete, the underdrain system thereby being rigidly supported and all possibilities for dead water space and fouling thereby eliminated.

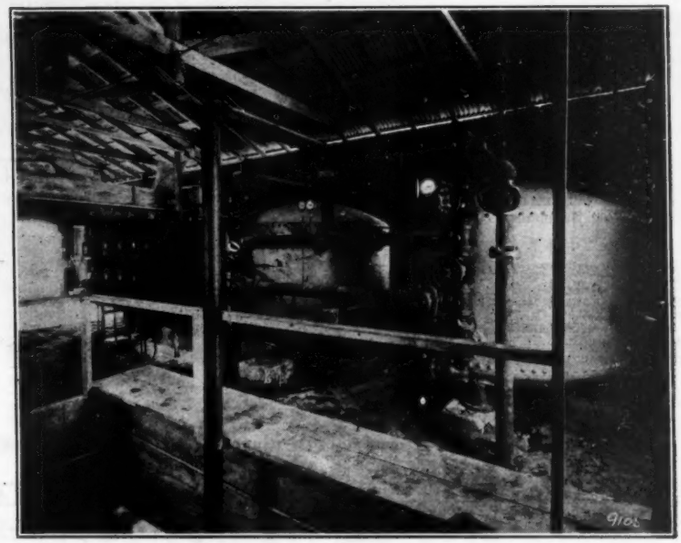
Superimposed upon the underdrain system is a properly graded and gravel bed consisting of four grades of gravel and filter sand having a total depth of approximately 34 inches.

When two or more filters are installed, each filter is equipped with a rate of flow indicator in order to enable the operator to properly distribute the load between the respective filters. Since these flow indicators show also the washing rate they enable the operator to wash the filters at the proper rate to assure efficient washing. Washing the filters at less than the required rate necessitates the use of excessive amounts of wash water and results in fouling of the filter bed. Washing at higher than the required rate results in loss of filter material or disrupted beds. The filtered water is received in a sump or clear well for delivery to the point of use as required.

Diagram 2 is typical of waste water recovery plants of this type. As in the

(Continued on Page 81)

Lime mixing plant and alum plant for waste water treatment in an Oklahoma installation.



Pressure filter used in steel settling type installation.

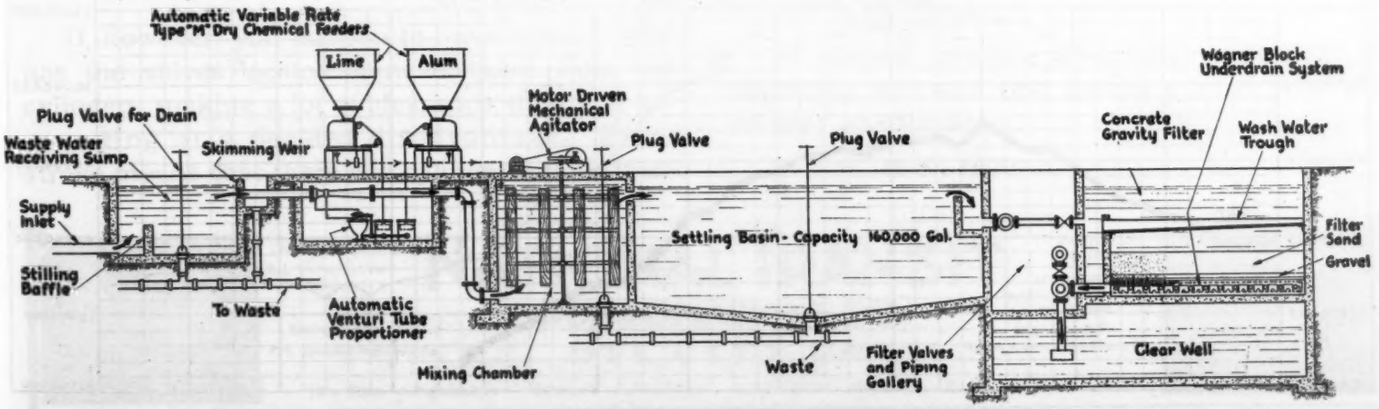


Diagram 2—Flow chart of waste water recovery plant of the concrete basin gravity type. Plant has a capacity of 25,000 bbls. daily.

Drill Must Insure Future Oil Supply

East Texas Will Require Thousands of Wells to Develop It Fully. Oklahoma City and Hobbs Areas Are Drilled Up

By L. G. E. Bignell
Petroleum Engineering Editor

The Federal Oil Conservation Board's committee of petroleum economics headed by E. B. Swanson, chairman, states that the daily needs for domestic crude oil for this country for the balance of this year are estimated as follows:

Month—	Bbls.
September	2,520,000
October	2,433,000
November	2,445,000
December	2,399,000

These figures are based upon the gasoline demand for the balance of this year with the ratio of gasoline to crude oil at 48.354 to 1.

To secure this oil at the average rate of 2,451,200 bbls. per day for the balance of this year may seem quite easy of accomplishment if the size of some of the recent new fields alone is considered. East Texas, because of its great area and enormous production during the past six months, has misled many into believing that the future supply of crude oil for this country was assured but the following table has been prepared to get at the true facts and they do bear out this assumption.

From data compiled by James McIntyre and reported in his article on Page 22 of the Semiannual issue of The Oil and Gas Journal of July 30 it is found that the actual production for the first half of 1931 was at the rate of 2,290,000 bbls. per day and totaled 415,774,190 bbls. from 321,266 wells, an average per well of 7.15 bbls. per day.

These figures take into account a production of an average of 174,211 bbls. of oil per day from East Texas and it is now to be limited to a production of not to exceed 225 bbls. per day per well. Other flush pools such as Oklahoma City, Hobbs, N. M., Yates Field, Texas, and Van Pool, Texas, will also be restricted by water movements and cannot be expected to maintain the rate of production they have enjoyed in the past.

PRODUCTION BY STATES FOR FIRST AND SECOND HALF 1931

States—	Prod. first half '31— Total (bbls.)	Per day average (bbls.)	Est. prod. second half '31 (bbls.)
New York	1,637,000	9,075	9,500
Pennsylvania	5,465,000	30,200	30,200
Ohio	2,811,000	15,500	14,900
W. Virginia	2,211,000	12,200	12,040
Kentucky	3,176,000	17,500	16,500
Michigan	1,511,000	8,350	7,000
Tennessee	4,000	22	20
Indiana	409,000	2,260	2,150
Illinois	2,283,000	12,600	12,600
Kansas	20,070,775	110,883	110,000
Oklahoma	95,838,677	529,496	550,000
Texas (inc. La. Gulf Coast)	151,208,574	835,406	902,000
Arkansas	8,649,636	47,788	36,500
N. Louisiana	7,237,389	39,930	30,000
Wyoming	7,814,930	43,176	42,500
Montana	1,501,846	8,297	8,000
Colorado	758,242	4,189	4,250
New Mexico	7,522,672	41,562	42,000
California	96,675,449	528,594	535,000
Total	415,774,190	2,297,033	2,355,160

Estimated domestic requirements economic report 2,451,200
Estimated daily production 2,355,160
To be made up out of storage.... 96,040

This is in itself a healthy condition for the industry and should be maintained and withdrawal from stocks of crude oil in this country should be consistently carried on.

If regulated production and throughput

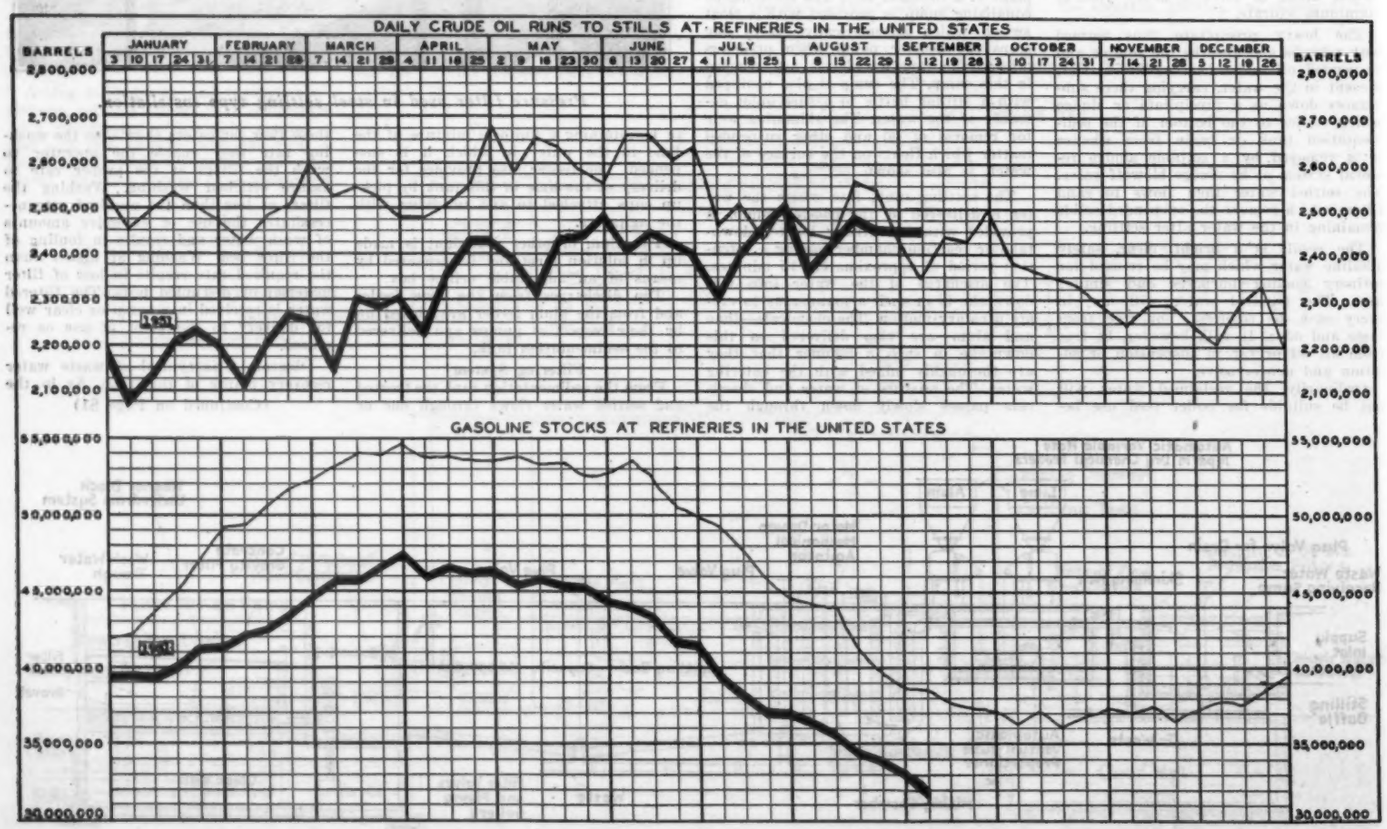
(Continued on Page 98)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending September 12.

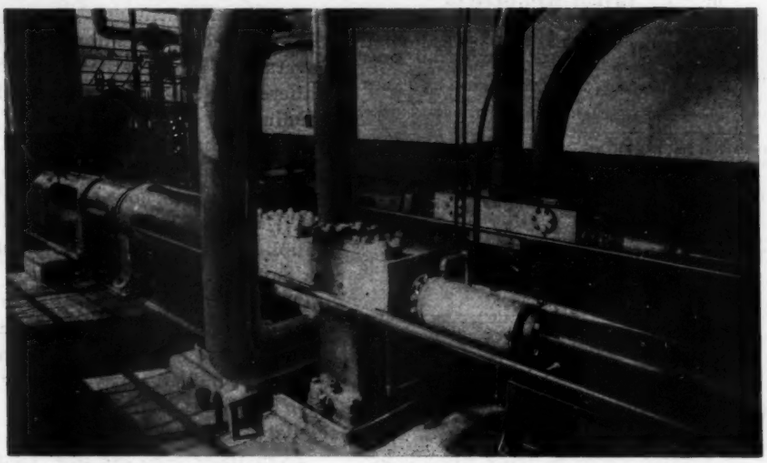
	Week ending September 12— (1)	(2)	(3)	(4)	Week ending September 5— (1)	(2)	(3)	(4)	Week ending September 13, 1930— (1)	(2)	(3)	(4)
East Coast	100.0	457,000	4,253,000	10,625,000	100.0	457,200	4,462,000	10,937,000	100.0	473,300	5,428,000	11,192,000
Appalachian	91.8	111,900	1,244,000	1,525,000	91.8	100,700	1,171,000	1,472,000	91.8	84,100	1,140,000	1,105,000
Indiana, Illinois, Kentucky	98.1	360,100	3,956,000	4,716,000	98.2	359,400	3,540,000	4,570,000	89.6	299,700	5,635,000	4,460,000
Oklahoma, Kansas, Missouri	89.6	364,100	2,672,000	5,191,000	89.6	287,000	2,439,000	5,060,000	89.3	269,500	2,553,000	4,828,000
Texas	91.3	534,600	5,467,000	12,043,000	91.3	554,600	5,597,000	11,790,000	90.4	570,600	5,674,000	10,662,000
Louisiana and Arkansas	98.9	168,200	803,000	3,236,000	98.9	173,900	741,000	3,154,000	96.8	155,400	1,305,000	2,006,000
Rocky Mountain	89.3	49,200	1,216,000	594,000	89.3	45,400	1,266,000	599,000	93.6	55,900	1,889,000	1,203,000
California	96.5	474,700	12,218,000	97,244,000	96.5	487,100	11,868,000	97,538,000	99.3	537,700	14,305,000	105,419,000
Total United States	95.0	2,459,800	31,818,000	135,374,000	95.0	2,456,300	31,184,000	135,330,000	95.6	2,446,300	37,832,000	140,875,000
Texas Gulf Coast	99.8	390,600	4,295,000	8,522,000	99.8	423,000	4,461,000	8,337,000	100.0	439,000	4,474,000	7,866,000
Louisiana Gulf Coast	100.0	111,900	594,000	2,211,000	100.0	115,400	574,000	2,119,000	100.0	108,400	1,003,000	1,274,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.

SUCCESSFUL REFINERS USE



TRANSIT hot oil PUMPS

Successful refining depends on whether or not you waste or save in your refining operation.

In your cracking plant, for instance, if you are operating a TRANSIT Hot Oil Pump, where the valves are very close to the cylinders, reducing the clearance to a minimum, you have the ideal condition for economical operation. Every stroke puts a cylinder full of oil through the coils.

If, however, you happen to have a pump that has the valves located some distance from the cylinders, making a lot of clearance, then you are operating at a decided disadvantage. Every stroke means that there is a cylinder full of steam used all right, but you are putting through the coils only from 30 to 50% of the fluid cylinder displacement. The result is a big waste of steam.

You will make gasoline, but it will cost you more money to make it than it costs the refiner with a TRANSIT Hot Oil Pump.

If you are contemplating the installation of a cracking process, see to it that a TRANSIT PUMP is specified.

In addition to being an economical unit it is absolutely safe and that means a lot to your big refinery investment.

Literature on request.

BEAUMONT, TEXAS
E. L. Wilson Hardware Company

SALT LAKE CITY, UTAH
F. C. Richmond Machinery Co.

NATIONAL TRANSIT PUMP & MACHINE CO.
OIL CITY, PA.

PHOENIX, ARIZ.
Pratt-Gilbert Co.

LOS ANGELES
Republic Supply Company of California

ST. LOUIS, MO.
Reeves & Skinner Machinery Co.

NEW YORK PHILADELPHIA CLEVELAND PITTSBURGH LOS ANGELES HOUSTON TULSA NEW ORLEANS

The Oil and Gas Journal

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle.

President - P. C. Lauinger
General Manager - John M. Egan
Editor - James McIntyre
Managing Editor - Andrew M. Rowley
Refinery Editor - C. O. Willson
Technical Editor - Charles K. Francis, Ph.D.
Petroleum Engineering Editor - L. G. E. Bignell
Associate Editor - W. T. Anderson
Associate Editor - W. T. Ziegenhain
Associate Editor - Thomas F. Smiley
Advertising Manager - E. Klappenbach
Circulation Manager - Simon H. Rourke

DISTRICT ADVERTISING OFFICES

C. L. CAIN - 101 Park Ave., NEW YORK CITY
C. R. FARMER - 6 North Michigan Ave., Room 1416, CHICAGO, ILL.
LOUIS D. WEST, 1105 Leader Bldg., CLEVELAND, OHIO
R. P. (SALTY) CLARK - 309 Pacific Mutual Bldg., LOS ANGELES, CALIF.
NEIL WILLIAMS - 1316 Second National Bank Bldg., HOUSTON, TEX.

TERMS OF SUBSCRIPTION
(By Mail, Postage Prepaid)

Single copies	$ .15	One year (in United States)	$6.00
Three months	$2.00	One year (in Canada)	$7.00
Six months	$3.00	One year (foreign countries)	$7.00

ADVERTISING RATES ON APPLICATION
Telephone: 3-6291
Remittances by Checks, Drafts, Express or Postal Money Orders should be made payable to
The Petroleum Publishing Company
Cable address, "Oilgasnal"

MEMBER AUDIT BUREAU OF CIRCULATIONS

DANGER AHEAD

The natural gas industry in several states is being ground between the upper and nether millstones of a demand for lower rates and the imposition of higher taxes.

Companies in Oklahoma, for instance, who have reduced their rates have been met with an increase in their valuation for taxation purposes of millions of dollars.

The political need for more taxes probably never considered the matter from any other angle, least of all the standpoint of the gas companies which are compelled to pay out a larger sum from a smaller revenue to which they have been reduced by lower rates.

Increasing the assessment on an individual business man who is actually doing less business would be denounced as a rank injustice; it is none the less so when the victim is a group of men who invested their money in the gas industry.

Public toleration and even approval of such injustice dates back, of course, to the "public be damned" days of corporate mismanagement which the gas companies have been doing their best to overcome in recent years by cultivating customer good will through frank and fair dealing.

The modern business gospel that the public must be pleased has been accepted and put into practice in the relations of progressive utility companies as well as in general merchandising circles. It has been a topic at every gas association meeting for several years and departments are maintained to put it into practice.

In Oklahoma recognition of the value of customer good will has led to rate reductions on the eve of the winter consuming season but there is no such reasonableness in withholding revision of tax assessment until it is seen how the business fares with less income.

The old idea that a gas company is fair game for the tax hunter persists, regardless of the fact that increases in taxes have been a consistent factor in increasing the cost of gas to the consumer. Taxes on any business cannot be increased without affecting the cost of doing business and consequently the cost to the consumer.

In these days when every nation is bent double with taxation, with the prospect of heavier burdens to come, people are learning as never before the handicapping effect on everyday affairs of continually growing demands from the tax collector.

One of the lessons we will need to learn if we are to lessen this burden is that there is no source of taxation except by taking it out of earnings and the more earnings a business has to pay over to the tax collector the more it must recover from its customers or go to the wall.

The present crusade against the gas companies is perhaps a sign of the times. Agitations are born and thrive in periods of depression. When everyone was prosperous, or supposedly so, agitators were out of luck. Nobody had time to listen to them.

But when times change people change with them. Particularly when the change is world wide and no one seems to have the answer.

The crusade against the gas companies, the resort to military control of the oil fields, the proposal to ban or destroy surplus cotton, are all evidences of this unsettlement of the popular mind, this drifting from anchorages that were thought so safe.

The oil industry, as well as the gas industry, is deeply interested in this development.

Government regulation of industry may seem welcome when the Government is sympathetic and understanding. But what guarantee is there that the Government will always be sympathetic or understanding?

What is happening to the gas business is an example.

There is already the comment of a New York college professor, author of a book about the oil industry, that military control of the oil fields is paving the way for legislation making the oil business a public utility, and therefore subject to public regulation like the gas business.

That would be no stranger or more startling than the shutting down of the oil fields of Oklahoma and Texas by the national guard seemed before it actually was done.

The oil industry may discover too late that it is paying too high a price for official regulation of its affairs which it ought to have regulated itself.

Even those who are now glad of that regulation in default of self-government by the units in the industry may have cause to regret it if regulation is carried by stress of agitation of the popular mind in times like these to extremes that will hamstring everyone in the industry.

In the same way those who have baffled efforts at self-regulation and have thereby forced recourse to official restriction will find their final position much worse than if they had gone along with the rest of the industry in solving its troubles for itself.

There have already been samples of the trend of thought and action in several of the states. Radical measures are being discussed and agitated far beyond anything every attempted in this country or indeed elsewhere.

With Congress so delicately balanced between the major parties and the balance of power possibly held by insurgents there is grave risk of the federal legislature being infected also.

The oil industry should take note of these facts and quit squabbling over selfish interests and get together on a program of self-regulation that will avoid giving the states or Congress further excuse for intermeddling in its affairs.

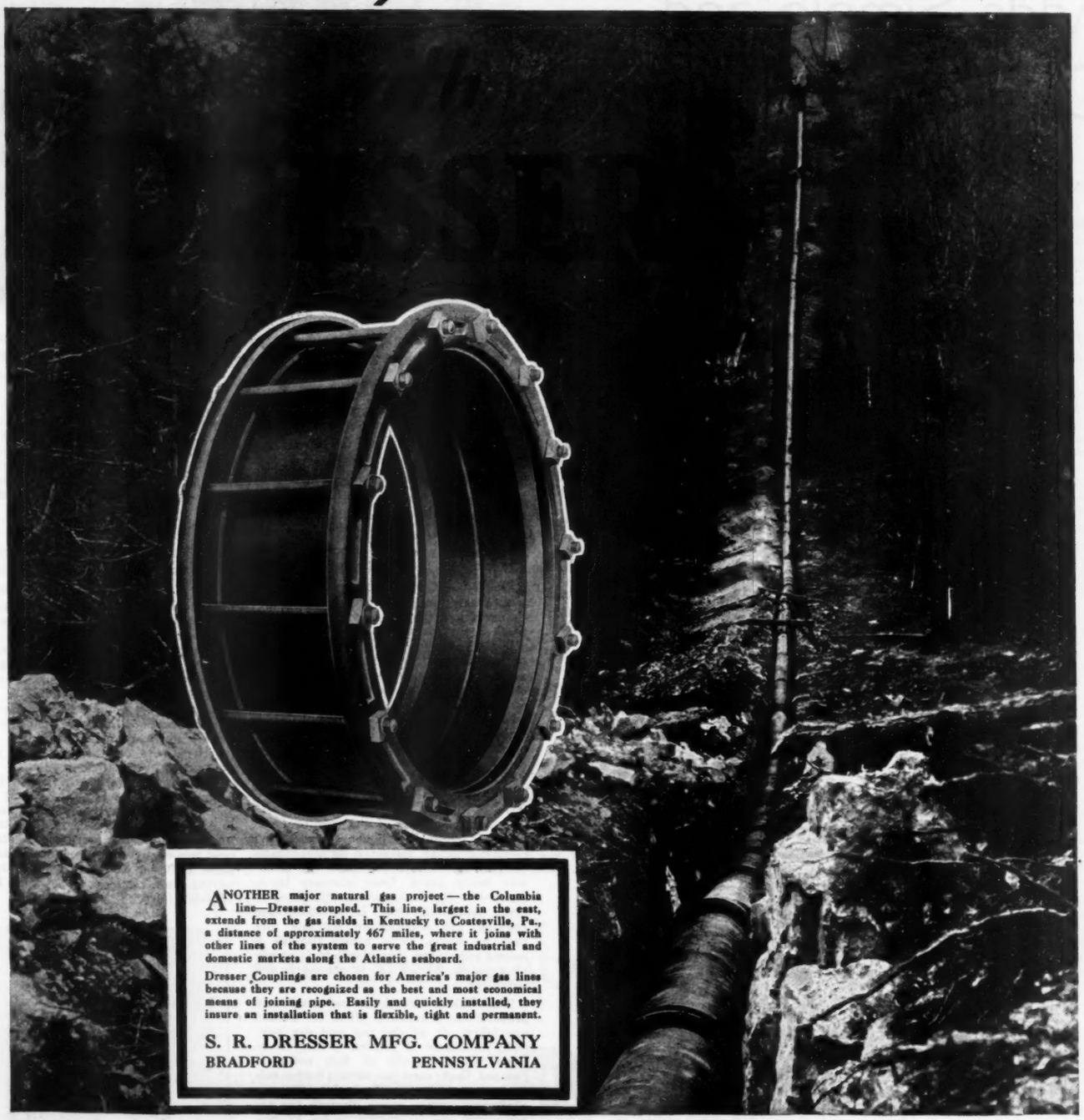
Of course, if oil men want to have their business in the same sort of strait-jacket that the gas men are in, subject, for example, to such absurdities as regulation that forces reduction of revenue and increase of taxes at the same time, they can continue their conflict until they get what is surely coming to them.

If the oil business is to continue a private business, not a public utility, the private interests must prove their ability to run their business without the need of state militia.

Earl Oliver's illuminating report of his study of the situation in Texas, published in this issue of The Oil and Gas Journal, goes directly to the root of the matter. No wonder the legislature was confused when the oil industry itself presented such sharp division in its testimony.

It is surely time the warring factors in the industry closed up their ranks in the face of the imminent common danger of having their heads knocked together by an angry popular demand for drastic regulation.

From Kentucky to the Eastern Markets



ANOTHER major natural gas project — the Columbia line—Dresser coupled. This line, largest in the east, extends from the gas fields in Kentucky to Coatesville, Pa., a distance of approximately 467 miles, where it joins with other lines of the system to serve the great industrial and domestic markets along the Atlantic seaboard.

Dresser Couplings are chosen for America's major gas lines because they are recognized as the best and most economical means of joining pipe. Easily and quickly installed, they insure an installation that is flexible, tight and permanent.

S. R. DRESSER MFG. COMPANY
BRADFORD PENNSYLVANIA

DRESSER COUPLINGS Dominate!

White Star Plant Adds Simple and Compact Rectifier

* * * * * *

A complete and compact two-unit rectifying plant was recently completed and placed in operation at the Trenton, Mich., refinery of the White Star Refining Co. Aside from the two rectifying units proper, the plant consists of a pump house, cooling tower and necessary tankage.

One of the two rectifying units charges pressure distillate from Dubbs cracking units and removes the lighter fractions. The other rectifying unit charges a mixture of overhead condensate from the first, and light gasoline from the recovery plant.

The function of the pressure distillate rectifying unit is to remove by fractionation essentially all of the butanes and lighter fractions. Such an operation results in a well-stabilized pressure distillate product which is much more economical to handle in the subsequent treating and re-running operations. In the debutanizing operation practically 100 per cent of the hydrogen sulphide contained in the raw pressure distillate is removed, which decreases treating costs, and at the same time, provides a distillate which may be easily handled in the re-run operations without the customary evaporation and handling losses.

The change in characteristics of the raw pressure distillate from the Dubbs units resulting from the debutanizing operation is shown by the following distillation:

	(1)	(2)
Grav., °A.P.I. at 60° F.	54.5	48.4
I.B.P. °F.	89	126
10% distilled	160	185
20%	212	224
30%	256	260
40%	296	307
50%	345	340
60%	389	372
70%	434	413
80%	470	459
90%	535	485
F. t. p. °F.	556	555
Distillation recovery, % ...	91.5	98.5

Column 1—Raw pressure distillate direct from Dubbs units.

Column 2—Rectified Dubbs distillate as obtained from debutanizer.

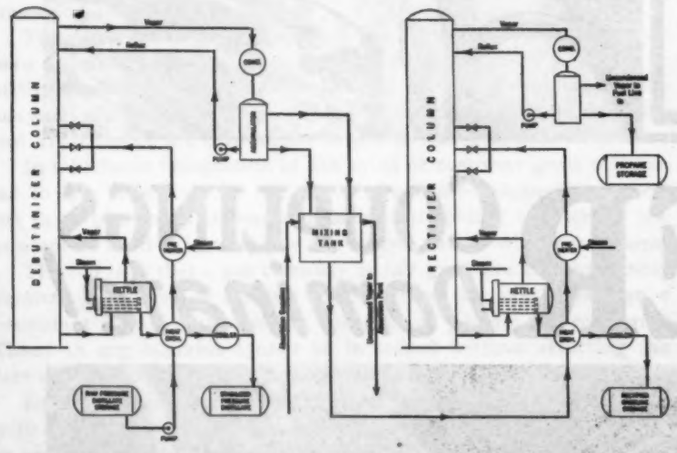
The various hydrocarbon fractions removed from the raw Dubbs distillate by the debutanizer unit are carried overhead in the vapor phase, and are subject to the cooling action of condensers. Those vapors not liquefied in the condensers pass directly to the absorber of a conventional recovery plant under the prevailing pressure. With correct design, the condensate formed in the condensers represents about 10 times the quantity which should be recovered in the absorption plant, so that it cannot be said that the debutanizer unit calls for excessive recovery plant capacity.

* * * *

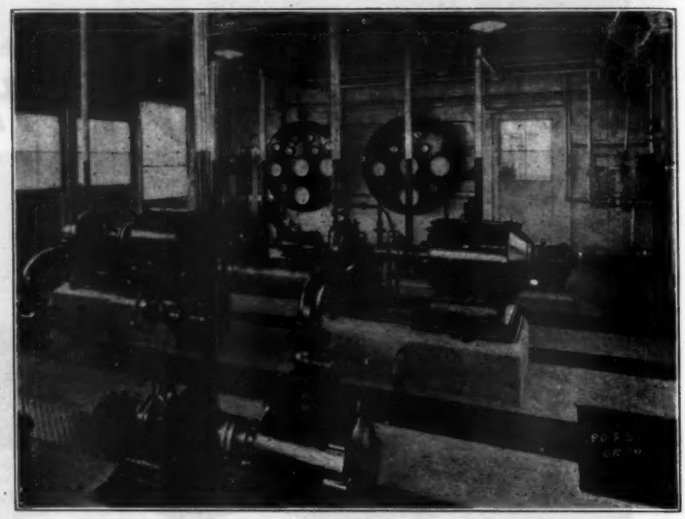
As the overhead condensate from the debutanizer unit and the recovery gasoline are much too volatile to use directly as a blending agent, it is necessary to resort again to rectification. In order to reduce both the first cost, as well as operating expense, these two volatile gasolines are mixed together to form the feed to the second rectifier unit, or final stabilizer. This unit operates at 180 pounds, as against 40 pounds on the debutanizer, and produces an essentially propane free base product which is excellent for blending purposes because of its very high butane content.

The Engler distillations are as follows for the raw feed to the stabilizing unit and the product obtained:

	Raw feed to stabilizing unit	Product from stabilizing unit
Grav. °A.P.I. at 60° F..	47.0	85.7
I.B.P. °F.	46	76
10% distilled	78	87
20% distilled	89	92
30%	100	95
40%	112	100
50%	130	106
60%	148	113
70%	172	120
80%	...	136
90%	...	188
F.B.P. °F.	347	338
Distillation recovery, %	85	94



Flow diagram of the new vapor recovery and rectifying unit at the White Star Refining Co. plant in Trenton, Mich.



Interior of pump house showing the motor-driven centrifugal pumps in the foreground and the instrument and control panels in the background.

* * * * * * * *

A second product is obtained from the stabilizer unit, in exactly the same manner as is the overhead condensate from the debutanizer. This liquid has a boiling range of from 46° F. to 18° F., and is essentially propane. It is stored in two high pressure storage tanks connected directly with the stabilizing unit and is used as a liquefied bottled gas.

Both rectifying units are equipped with steam preheaters between the exchangers and the columns to permit the feeds being introduced into the towers at correct temperatures. The pumps, with the exception of the stabilizer feed pump which is of the reciprocating type, are centrifugal, each being directly connected to an explosion proof motor equipped with oil immersed cross-the-line starter and vaporproof push button. Pump capacities are 30 per cent in excess of the rated unit capacities, or 165,000 gallons per day of raw pressure distillate and 39,000 gallons per day of raw stabilizer feed.

Tracing the flow of the raw pressure distillate through the debutanizing and rectifying units, reference to the accompanying flow chart will show the distillate being taken from storage. It is pumped to the debutanizing column after being preheated, first, in an exchanger running the debutanizer bottoms and then by steam, as it passes through a second exchanger. The distillate is at approximately 300° F. as it enters the debutanizer.

The lighter fractions including any propane and practically all of the butane are taken off at the top and are partially condensed. A portion of those fractions which liquefy at this point is pumped back over the debutanizing column as a control reflux while the uncondensed portion passes through the accumulator and is further cooled by water. The second cooling liquefies an additional volume, all of which enter what is termed a mixing tank.

This tank is held under 30 pounds pressure and serves a double purpose. It not only acts as a separator for the condensate and permanent gases coming from the system but also receives the absorption gasoline made at the gas recovery plant.

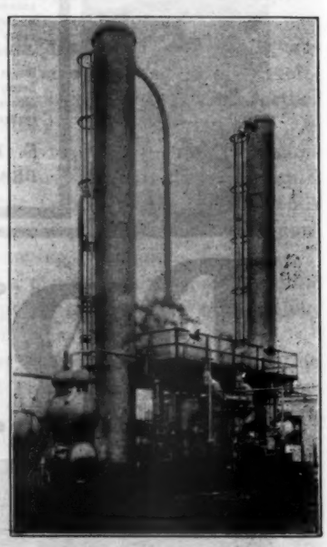
Any light fractions remaining as a vapor leave the tank along with the uncondensed vapors from the debutanizer and go to the gasoline recovery plant.

From the mixing tank the condensed portion of the distillate and the absorption gasoline pass to the rectifying unit. The liquid fractions which remain in the debutanizing column are taken off the base of the column and pass into a steam heated kettle held at 325° F. Any vapors that form at this point are returned to the column and the stabilized distillate is continuously withdrawn off the bottom of the kettle, cooled and stored for rerunning.

Rectifying Unit

The oil in the mixing tank which includes the absorption gasoline is pumped through an exchanger and steam preheater and enters the rectifying tower in much the same manner as in the case of the debutanizing plant. The oil enters the column at 230° F. and about 170 pounds pressure. The liquid fractions which accumulate in the base of the column are withdrawn through a kettle maintained at about 240° F. Here the lighter fractions distill off and are returned to the column while the liquid fractions pass on through to be cooled and stored as rectified gasoline.

The vapors which are formed in the column are taken off at the top at about 130° F. and partially condensed and run to an accumulator. This supplies the liquid reflux for the rectifier and the excess passes to pressure storage as propane. Both the debutanizing and the rectifying units were built by the Foster Wheeler Corp.



General view of the debutanizing tower and the rectifying unit.

You don't need crude stills any more

Dubbs cracking does the whole job

Pump crude oil into one end of an improved type Dubbs unit and take finished cracked gasoline—all cracked—off the other

No skimming

No re-running

No straight-run gasoline

Low costs, low losses, high yields

An opportunity for profits

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Call for Federal Regulation Discussed

Says Monopoly Is Inevitable and Serious Waste Will Continue Unless New Production Can Be Withheld Until Needed

By James G. Stanley
Former General Counsel, Continental Oil Co.*

The oil industry is characteristically American; it has no place for the timid; it stirs the instincts of adventure; it fires imagination; it commands vision but it lays low the visionary; it has fascinated professional and executive genius and through their skill it supplies joy and comfort to millions of our people and turns the wheels of the industrial world.

But the breadth of its service to mankind has deepened dependence upon it. And so today the American public is seriously aroused over the tragic plight of the oil industry and its apparent inability to solve its serious problems in its own way and without outside interference.

Over four years ago an eminent counsel for a leading oil company used this language before this association:

"The leaders of the industry should be impressed with the fact that, after all, their supreme duty is to the American public and the American Government. If the industry on its own responsibility and in its own way, shall fail to put its house in order . . . . there will be an insistent—perhaps an irresistible demand for legislative control."

That statement was made in 1927 and today the house has not only not been put in order but the sheriff is sitting on the front step prepared to sell the house to the highest bidder, with few chances of there being any bidders courageous enough to take over the remains.

Conditions Tending Toward Monopoly

But comedy has no place in a scene so fraught with tragedy. Since 1926 we have seen crude oil decrease from a weighted average price for the period 1926 to 1930 of $1.43 per barrel to 27 cents in May, 1931—a reduction of 80 per cent; we have witnessed a decrease of 27 per cent in refinery and distributing margins for the same period. Bulk gasoline prices since the 1926-30 period have declined over 48 per cent and the retail price (uniformly below average commodity prices) has fallen off 33 per cent. The market value of oil securities has declined over $6,000,000,000. This condition, if permitted to continue, can mean but one thing—ruin and bankruptcy for all those who have no surplus out of which to meet current operating costs. Of these there are thousands—many of whom a year ago were regarded as major units in the oil business. Their absorption by the larger concerns is inevitable unless conditions are remedied. And what must be the ultimate result? The eventual monopolistic control of the oil industry by the few who are able to survive. The American public will not permit that to happen and it will put on the brakes with a speedier application than the antitrust laws afford.

Waste of An Irreplaceable Product

But there is another scene even as tragic as the view of the breaking down of a great industry and that is the profligate and reckless use which is made of the country's oil reserves with an utter disregard of the fact that they are irreplaceable. Here again the public interest and the national welfare are vitally concerned. The country's annual crude supply from present proven areas is about 900,000,000 bbls. and many of the wells are choked to small percentages of their potential production. It is the opinion of many whose judgment is worthy of great respect, that that amount of annual production can be maintained, without drawing upon new reserves for several years to come. Added to this there are over 600,000,000 bbls. of crude oil in surface storage and our imports are about 60,000,000 bbls. per annum. There is therefore a known supply of great abundance, which will be more than ample for all requirements for a period of at least five years.

This abundance, while a blessing in certain respects, is a source of immeasureable harm, for it is an inducing cause of wasteful refinery practices which would not exist if the supply were not so plentiful. Our refineries consume about 950,000,000 bbls. of crude oil to meet our domestic and export requirements and in the operation, produce over 400,000,000 bbls. of fuel oil for market competition with coal and gas. Motor fuel requirements could be met with 800,000,000 bbls. of crude, so that the superabundance of the present supply is causing an unnecessary draft upon our crude oil reserves of over 150,000,000 bbls. per annum. A saving of this output would extend the life of our present reserves for a very perceptible period. There are enormous losses also due to the maintenance of great quantities of oil in surface storage and no one can estimate the magnitude of the waste which results from the reckless and hurried extraction of oil, destroying the gas energy in the pool and leaving a great quantity of oil in the sand—unrecoverable except at prohibitive costs.

But this extravagant use of our oil resources is not confined to present productive areas. If it were, its disastrous effects would soon be realized and in time would force their own correction. But new pools of production are brought in with shocking regularity; their production is added to the already glutted market, and waste and excessive losses spread into the enlarged area with quickened pace. The industry hardly becomes adjusted to one flood of production and settles down to a feeling that stabilization at last has been achieved before a new one breaks loose—adding chaos to already existing disorder. If we were describing the waste of a product like wheat or cotton or even forests, there would be less occasion for public concern, for these products can be planted by man and regrown by nature. But oil cannot be replaced. Once taken from nature's reservoir there is no alchemy by which man can restore the supply. The American public is therefore vitally concerned in our oil reserves and it will no longer permit them to be drawn upon with reckless abandon and without regard to the country's economic needs.

New Pools Under Legislative Control

Monopoly in the industry is inevitable and serious waste will continue unless production from new pools can be withheld from the market until there is economic need for it.

Is it not time, therefore, to put some measure of legislative control over the bringing into the market of production from new fields? But one conclusion can be drawn. Control must be exerted. But where lies the power?

Federal Legislative Control Demanded

State measures for co-operative or unit development of oil pools will do much to bring about an orderly development of such pools and will go far towards re-

(Continued on Page 98)

*Before Minerals Section, American Bar Association, Atlantic City, N. J., September 16, 1931.

Late Fields

OKLAHOMA

New operations in Oklahoma increased for the week ending September 12, when a total of 26 new locations were reported, compared to 12 the previous week. The majority of the new work was in the older areas of the State. Creek County led with seven new operations, Oklahoma, Okmulgee, Osage and Wagoner Counties each had three, Muskogee County two, Johnson, Marshall, Murray, Pittsburg and Pontotoc Counties one each.

Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co.'s No. 6 Preston-Culp, NW cor. NE, Section 6-5-9w, on the west side of the Cement Field in Caddo County, was drilling in a rotary hole at 9,715 feet, in sandy lime. The test found a brown lime at 9,691 feet. It is the deepest test ever drilled in the State and it is about 1,200 feet deeper than any other test in the State.

The Oklahoma City Field had 831 wells as of September 12, with 144 wells making water, 71 were lime producers and 73 wells sand wells. At the present time there were 21 tests drilling and 22 were shut down. It is estimated that the field has 80 more locations to be drilled on the north and west and southwest parts of the field.

Production from the Oklahoma City Field continued low over the week-end and some of the pipe line companies were running stored oil from the field. The Skelly Oil Co. sold 65,000 bbls. of stored oil which was located on the company's leases. It is the only appreciable sale of stored oil from the Oklahoma City Field since the shut down. The production on Sunday, September 13, was 7,526 bbls. of oil and on Monday the production was 1,428 bbls., on September 15, 2,077 bbls.

Iglehart and others' No. 1 in the SE cor. NW, Section 27-9-10, Hughes County, a semiwildcat, flowed 35 bbls. of oil in four hours from sand at 2,313-50 feet. The well is the first oil found in the vicinity which has several gas producers.

Hilton Phillips and others' No. 1, SW cor. NW, Section 2-14-3, Lincoln County, is a new wildcat location northwest of the West Chandler Pool. The location is the result of seismograph work in the area and the test will be watched with considerable interest, as very few tests have been located from this kind of work.

KANSAS

Lario Oil & Gas Co.'s No. 1 Boals, SE cor. NW Section 24-19-2w, which extended production on the west side of the Ritz-Canton Pool, in McPherson County, is estimated to be a 900-bbl. well from the Viola limestone at 3,390-95 feet. It is the thirty-fifth Viola lime well completed in the field and is the Lario Oil & Gas Co.'s eighteenth well in the area, and gives the company a potential of approximately 27,000 bbls. a day.

Skelly Oil Co.'s new 4-inch pipe line from the Voshell Pool to the Ritz-Canton Pool is nearing completion. A pump station is being erected on the west side of the Ritz-Canton Field, in Section 36-19-2w, and storage tanks for 10,000 bbls. of crude oil is being provided.

Continental Oil Co.'s No. 1 Black, in Section 16-25-1, in the Goodrich Pool, in Sedgwick County, is waiting for cement to set at a total depth of 3,337 feet on top of the Simpson sand, where a showing of oil was found. It was necessary to recement the casing at 3,315. The test is an old chat producer drilled deeper and is the most northerly producer in the

(Continued on Page 104)

High Spots in Field News

EAST TEXAS

New locations during week number 164, with 95 completions and 539 wells drilling, rigged up or shut in.

SOUTHWEST TEXAS

Nueces County is holding attention. Most of gain in activity is in Laredo district. Darst Creek find important.

WEST TEXAS

Two offsets to Ward County semiwildcats being located. Wheat Pool extended, Schleicher County disappointment.

CALIFORNIA

California fears another price war but refiners making determined effort to stabilize market. New gas zone found.

ROCKY MOUNTAIN AREA

Higher price asked for Hobbs crude. Governor Seligman, demanding 52 cents, may call special session of legislature.

KANSAS

Schurr Pool landowners ask pool be opened but commission refuses. Ritz-Canton Pool producing less than 10 per cent.

GULF COAST

Manvel Dome well rated at 2,000 bbls.; considered most important development on Gulf Coast this year. Increasing activity.

NORTH LOUISIANA-ARKANSAS

New Pool promised in Sabine Parish. Best well to date in Urbana Field. Brisk drilling in North Louisiana. Arkansas wildcats slow.

OKLAHOMA

Pipe lines preparing for connections to new Oklahoma City wells when shut down is lifted. East Side shallow fields being developed.

East Texas Reports 164 New Locations

Ninety-five Completions During Week. Total Wells Drilling, Rigged Up or Shut In, 539. Water Encroachment Being Studied

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 14.—The Railroad Commission on September 11 amended the East Texas curtailment order issued on September 2, the change to go into effect at noon, September 15. This new rule reads that only one well shall be drilled to each 20 acres of surface ownership. For the purpose of enforcing this order the deputy supervisors are to divide the different areas of the district into 20-acre tracts. New productive areas will be likewise divided into units and fractional units as the field is extended.

Many of the operators have been desirous of some such ruling in regard to curtailment on an acreage basis, and this new ruling will probably be much more satisfactory to them than the order which merely allowed 225 bbls. per well, giving no consideration to an acreage basis. The new order is expected to curtail the orgy of drilling which started after the new order was issued, and which has been going on from almost the beginning of the pool, only checked a short time during the complete martial law shutdown. Companies which have large leases throughout the district continued to drill these leases at breakneck speed, staking many locations each week.

There were 164 locations staked in the district during the week, while 95 wells were completed. Total runs from the field for September 12 were 410,609 bbls. from 1,879 wells, according to figures turned in to the military headquarters at Kilgore, where all operators and companies have to report their daily production. The average runs per well for that day were 218 bbls., 7 bbls. below the amount allocated to each well.

Allowable Too Large

As almost 100 wells are being completed each week the total daily runs are going to climb unless the Railroad Commission continues to issue new orders that the per well allowance must be cut back to keep the daily allowable around the 400,000-bbl. mark. The Railroad Commission has this authority, and is being condemned by many for not curtailing the daily allowable to even below 400,000 bbls. per day. If this was done, however, there probably would be much opposition raised by those who want a larger allowable, consequently the commission is at sea in pleasing everyone, and can go only by figures turned in by the military supervisors in the district, and take recommendations under advisement for what is best for all interested in the field.

Water Encroachment

C. V. Cottingham, assistant deputy supervisor in the East Texas district, called all available geologists to meet with him at Kilgore on September 14 to determine the rate of water encroachment in the field, and to seek advice as to what procedure the Railroad Commission should follow in supervising the drilling in of edge wells to prevent possible flooding of pay sand by water. Other meetings will be held in the district this week to discuss this problem. The meetings are expected to result in the adoption of a policy which will curb operators from drilling too deep in the sand and the water stratum.

With the wells pinched to 225 bbls. or less per well, there is but little water being produced, even in those wells which were showing up large amounts of water before the shutdown, but more drilling in the district, with some of the wells going too deep, can cause much trouble for all producers in the field, and it is this too deep drilling which is hoped to be prevented in the future. Considerable of it has been done already, and was the direct cause of first water showing up in the field, and spreading to other wells.

With the large number of locations being staked in the district during the past few weeks, and possible continuance, and a corresponding large number of wells being completed each week, there is the great probability that the price of crude in the district will again fall, especially when one of the major producers and purchasers, which now is almost running its line to capacity, drills in more wells and sceures enough oil to fill all of its lines from the district. However, other pipe line companies serving the district, not having enough oil to fill their lines, may be strong enough competition to hold up the price. With 700,000 bbls. of pipe line outlet, and only 400,000 bbls. daily production in the district, competition alone should be able to hold up the price of the oil, regardless of one of the major purchasing companies having a sufficient amount of oil to fill its own lines.

Effect on Refineries

Several of the small refineries in the district are remaining shut down since martial law was put into effect. These plants say they cannot operate on the present price of the oil and the low price of gasoline. One plant has switched over to the refining of naphtha instead of gasoline in order to keep running.

Some of the refining companies have wells of their own from which they are obtaining oil, but others are not so well fortified. Some have only a few wells, and under the 225-bbl. per well limit are not producing enough oil to run their plants to capacity.

The Kilgore Refining Co. and Arrow Refining Co. have made connections to insure them operating at capacity, but the Rusk County Refining Co. and Constantine Refining Co. plants are still shut down. The Beacon Oil & Refining Co. has eight producing wells which have a daily allowable of 1,800 bbls., which is a little over half of the plant's capacity.

Practically all lease storage is again full in the district, the greater part of the oil in the lease tanks having been run before the field was reopened.

Completions and Drilling

The Joiner area, including Rusk and Smith County, has seen the completion of 688 wells up to the fore part of the week. There were 23 completed in the area, while one was abandoned as a dry hole. There are 102 drilling in this area and 42 new locations were reported for the area this week.

In the Kilgore area, northern Rusk and southern Gregg County, there have been 705 wells completed, 29 of them being new completions this week. There were also 29 locations staked; 92 wells are drilling in the area.

There were 27 wells completed in the Gladewater area, Gregg and Upshur Counties, this week with 42 new locations reported. Eighteen wells were completed in the Longview or Lathrop area this week, while 51 locations were announced. Total completions to date in the area total 437. There are 163 wells rigging up and drilling in the district. Two tests were abandoned as dry this week, while four derricks were abandoned.

There are 539 wells drilling, rigging up or shut in.

The 26 larger producing companies in the district have completed a total of 1,018 wells or over one-half of the completed wells in the district to date, these wells being located on and having proved 82,445 acres, or approximately one-half of the estimated potential producing acreage in the district which is placed at 120,000 acres.

Acreage Deals

Several of the major companies have farmed out their acreage on the western rim of the district in Gregg and Rusk County for consideration ranging from $500 to $1,500 per acre, which is payable out of one-fourth of the oil produced, no cash involved in the transactions. Wells are expected to be drilled immediately on this acreage, which is another incentive for drilling in the district, especially by those who have taken over these leases.

The Shell Petroleum Corp., which loaned men and money in the extinguishing of Bell and Graddy's No. 1 Daniels, which burned for 26 days, has taken over the lease owned by these parties. Cost of combatting the fire was the consideration agreed to in the transaction. This lease consists of 25 acres in the western part of the Mary Van Winkle Survey, southern Gregg County, in the Kilgore Pool.

The Magnolia Petroleum Co. has purchased a 210-acre tract in the F. Johnson Survey from Sam Hunter for a consideration of $1,000 per acre cash and $1,750 per acre out of one-fourth of the first oil produced. The company also purchased 35 acres adjoining its Griffith Davis lease on the east, in the W. P. Chism Survey. Consideration for this acreage was reported as $1,200 per acre.

Joiner Extended South

The Mid-Kansas Oil & Gas Co. extended production 2,100 feet farther south in the Joiner area this week when its No. 1 Cross, in the Cadene Survey, southwestern Rusk County, was completed for an estimated 7,000 bbls. per day, from sand topped at 3,624-45 feet. Bottom of the hole is 3,645 feet. This well brings production nearer to the Cherokee County line, and marks the probability of production extending a short distance over into that county, which will bring the fifth county into the producing zone.

Storage and Pipe Lines

The Texas Company is to build four 10,000-bbl. tanks and pumping station on the Tidal Oil Co.'s Nettleton lease in the I. Ruddle Survey, Lathrop area, Gregg County. These tanks and the station will serve the Texas-Empire 12-inch line which is now under construction from Gregg County to Port Arthur. One hundred and twenty-five miles of this line have been completed, and the contract reads that it must be completed by September 20.

The Atlantic Pipe Line Co.'s 10-inch to Atreco, from Gregg County, will be completed the latter part of September, according to word from the company's offices.

These two trunk lines will have a total capacity in the neighborhood of 90,000 bbls. per day.

The Sinclair Oil & Gas Co. has joined the list of companies soliciting oil in the district. Practically all major purchasing companies having lines in the district are now competing for connections, while their own companies are drilling as rapidly as possible to build up more production in an effort to obtain as much of the daily allotted production as possible for their pipe lines.

One of the companies serving the district with a 10-inch line, but connecting into another major company's line which takes 20,000 bbls. per day for transportation to the Gulf Coast, is said to be having difficulties in obtaining enough crude for its line. Other lines serving the district are expected to be placed in similar circumstances, which should keep the

(Continued on Page 82)

EAST CENTRAL TEXAS WILDCATS

Week Ending September 14

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
Riango Oil Co.'s No. 1 J. Lynn, 1,400 ft. from NE line and 7,425 ft. from E line of survey, R. Brown Sur.	Fishing 2,755 ft.
H. B. McConnell et al's No. 1 N. B. Watson, 500 ft. from W line and 4,350 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur.	Derrick.

ANGELINA COUNTY

R. O. Moore's No. 1 Abney Estate, 50 ft. N of Blk. No. 6, immediately out of city limits of Lufkin	T. D. 1,350 ft.; to recement csg.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 875 ft. from E line of survey, T. S. McKinney Sur.	Shut down 2,650 ft.
Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Charles Lewis Sur.	Drlg. 3,150 ft.
Parkering-Jones et al's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	Shut down 20 ft.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur.	Salt water on drill stem test; shut down 3,012 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, James Dill Sur.	Rigging up.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Derrick.
Helen-Clare Oil Co.'s No. 1 Mrs. M. P. Perkins, 1,800 ft. from N and 450 ft. from W of survey, Thomas Stafford Sur.	Rig up.
William A. Stone's No. 1 Blount Decker, 900 ft. E of E line of S. Selman Sur. and 1,200 ft. S of N line of E. M. Decker 406-ac. tract in George Ruddle Sur.	T. D. 5,476 ft.; plugged back to 5,470 ft.; drill stem test; flowing salt water.
Walton Oil Co.'s No. 1 E. Singletary, 250 ft. W and 150 ft. N of NE cor. of M. Lacey Sur. and in Walters Sur. on Singletary 84-ac. tract	T. D. 2,960 ft.; shut down.

DALLAS COUNTY

Paris' No. 1 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John P. Anderson Sur.	Drlg. 1,141 ft. in sand.

DELTA COUNTY

D. S. Hood's No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur.	Shut down 1,559 ft.

ELLIS COUNTY

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 510 ft. from S of Orland	Shut down 1,435 ft.

(Continued on Page 85)

Offsets to Ward County Semiwildcat

Area One of Most Active in Permian Basin. Wheat Pool Extension Well. Interesting Results in Schleicher County

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 14.—With the completion of Sturme and Simms Oil Co.'s No. 1 Jones in Section 25, Block B-29, Public School Lands Survey, semiwildcat in Ward County, the Prairie Oil & Gas Co. has announced the location of two offset tests to it on the company's Edmondson lease. Both tests are located in Section 23, Block 5, H.&T.C. Survey. The Stanolind Oil & Gas Co. has also staked an offset location, in Section 26, Block B-29. These three tests mean added activity for this immediate area, and for Ward County, which has been one of the most active counties in the Permian Basin for the past few months.

The Atlantic Pipe Line Co., which serves the Shipley and Bennett Pools, the two pools nearest to the above extension, is connecting with the Jones well which is averaging around 120 bbls. of oil per day at total depth of 2,485 feet. Pay was topped in the well at 2,475 feet.

There are 19 wells drilling, rigging up and locations staked in the county at the present time, by far the largest number of activities in any of the counties in the basin.

Wheat Pool Extension

With the completion of Eppenauer and Lockhart's No. 1 Johnson in Section 86, Block 1, W.&N.W., extending the Wheat Pool farther to the east, the Pasotex Pipe Line Co. started laying a 4-inch connecting line to it, the fifty-second producer in the Loving County Field. Total depth of the well is 4,365 feet, 1 foot in the Delaware pay which produces sweet high gravity oil. The well will probably be deepened after the pipe line connection is made. It is now making around 140 bbls. every 24 hours, flowing by heads. The well is producing from the lime instead of the sand and is the first to flow naturally from this formation without first being shot.

Wesner's No. 1 Nicks, interesting wildcat in Schleicher County, landed 6⅝-inch casing on bottom, and is now drilling below 4,100 feet, carrying the 6-inch. Cementing at 4,080 feet failed to prevent caving which had been giving trouble, and the 6-inch was run and is being carried as a result of this failure. The test is in Section 77, Block LL, T.C. Survey.

Eastland Oil Co.'s No. 1 Tisdale in Section 29, Block M, G.H.&S.A. Survey, Schleicher County, is now shut down at 4,510 feet, 10 feet below contract depth, and will probably be abandoned, although the owners are considering deepening it. This well had no showings such as the Nicks test and the Phillips Petroleum Co.'s No. 1 Whitten, consequently did not arouse any interest like those two tests which have brought independents and companies alike to purchase checkerboard acreage and blocks throughout the county, especially in the immediate vicinity of the tests. Several major companies hold the majority of the acreage around them, most of it being in large blocks. Deep and expensive drilling prevents other tests from being sunk in the county at the present time, but it will be almost virgin wildcat territory for further exploitation when oil is needed and prices of crude are high enough to merit the high cost of drilling and testing this area.

Production is remaining about the same in the Permian Basin, whereas distribution increased to a small extent during the time when the East Texas fields were shut in.

Panhandle District

The Gulf Production Co. made an interesting location in Section 356, Block 44, H.&T.C. Survey, Moore County, offsetting two producers which have been producing for a long time, but which until recently were without pipe line connections. The Phillips Pipe Line Co. is now taking their production. The area is approximately 3½ miles southwest of the nearest producing area.

But few locations and completions are being made in the district each week, as has been the situation during the past several months.

Wichita Falls-Ranger

The Wichita Falls and Ranger districts also continue at almost a standstill, with one of the interesting deep tests in Archer County being abandoned at a total depth of 2,321 feet. This was drilled by George W. Cooper and associates on the Bridwell ranch, in Section 122, Aldredge Survey. It is 1 mile northwest of production.

Another deep interesting test in this area is Trahan and others' No. 1 Coleman in Section 74, A.T.N.C.L. Survey. Sand was topped at 2,198 feet. Plug is now being drilled and test made thereafter. This test is 3 miles northeast of deep production and will mean a considerable extension if proven a producer from this deep pay.

NORTH TEXAS PRODUCTION
Week ending September 7

Panhandle District—	Bbls.
Carson County	5,662
Gray County	40,295
Hutchinson County	11,105
Moore County	1,717
Potter County	....
Wheeler County	360
Total production this week	59,139
Total production last week	61,271
Decrease	2,132
Wichita Falls District—	
Archer County	11,627
Baylor County	673
Clay County	445
Cooke County	1,535
Foard County	70
Haskell County	26
Jack County	1,919
Montague County	2,948
Throckmorton County	435
Wichita County	17,019
Wilbarger County	12,406
Young County	9,780
Total production this week	58,883
Total production last week	58,876
Increase	7
Ranger District—	
Brown County	3,066
Callahan County	1,502
Coleman County	2,096
Comanche County	757
Palo Pinto County	356
Eastland County	3,295
Shackelford County	2,140
Stephens County	4,110
Total production this week	17,322
Total production last week	16,781
Increase	541

COMPLETIONS IN WEST TEXAS

Loving County

Lewis and Slagel's No. 1 L. D. Cartwright, top pay 3,175 feet, initial production 25 bbls. per day and 50 bbls. of water, total depth 3,182 feet. H. W. Martin and others' No. 2 Wheat Ramsey, top sand 765 feet, top Delaware 4,188 feet, initial production after shot of 190 quarts 4,178-4,217 feet, 315 bbls., plugged back from 4,219-17 feet, total depth 4,219 feet.

Ward County

Bradford and others' No. 1 Carson, top salt 820 feet, initial production 5,450,000 feet of gas, top pay 2,140 feet, total depth 2,195 feet.

WEST TEXAS PRODUCTION
Week ending September 14

County—	Wells	Prod.
Andrews	4	....
Crane	377	16,331
Crockett	51	1,217
Ector	73	7,526
Fisher	11	947
Garza	2	9
Howard-Glasscock	543	28,825
Irion	9	64
Jones	86	1,371
Loving	46	3,206
Mitchell	111	1,874
Pecos	549	73,671
Reagan	355	25,202
Runnels	5	72
Scurry	5	....
Upton	263	4,649
Taylor	3	44
Ward	68	3,087
Winkler	595	38,979
Total production this week		206,074
Total production last week		205,553
Increase		521

COMPLETIONS IN RANGER DISTRICT

Callahan County

Producing Purchaser's No. 4 Alexander, oil sand 1,045 feet, initial production 60 bbls., total depth 1,045 feet.

Eastland County

May and others' No. 1 Morton, dry and abandoned, total depth 1,410 feet. Mook-Texas Oil Co.'s No. 1 Williamson, dry and abandoned, total depth 3,309 feet.

Palo Pinto County

Brazos River Gas Co.'s No. 2 Harrison, gas sand 1,040-50 feet, initial production 1,150,000 feet of gas, total depth 1,050 feet. Burton and McKee Oil Co.'s No. 1

(Continued on Page 82)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended September 14

Company, well, farm name, section and block—	Remarks—
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,900 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine	Shut down 1,750 ft.
COCHRAN COUNTY	
Penn Oil Co.'s No. 1 Myrick, C Labour No. 80 of League 139, Carson County School Lands	Drlg. 1,282 ft.
CONCHO COUNTY	
Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Betts & Dennis' No. 1 H. E. Woods, 710 ft. from E and 150 ft. from S Sec. 3, H.E.&W.T. Sur.	Shut down 80 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,850 ft.
CRANE COUNTY	
Southwest Oil Prod. Co. (Cranfill Bros.) & Penn Oil Co.'s No. 1 J. B. Tubb, 330 ft. from N and E of SW cor. of S 80 acres of NW cor. Sec. 3, Blk. B-27, P.S.L. Sur.	Drlg. 475 ft.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Ferner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
CULBERSON COUNTY	
Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land	Shut down 1,280 ft.
ECTOR COUNTY	
Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W Sec. 33, Blk. 43, Twp. 2s, T.&P. Sur.	Moving in material.
H. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur.	Shut down 3,280 ft.
EL PASO COUNTY	
Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.F. No. 7,247	Shut down 1,693 ft.
Cranfill & Reynolds' No. 1 George, 400 ft. from N and 350 ft. from E. Sec. 200, Blk. 1, B.B.&C. Sur.	Drlg. 2,190 ft.

(Continued on Page 84)

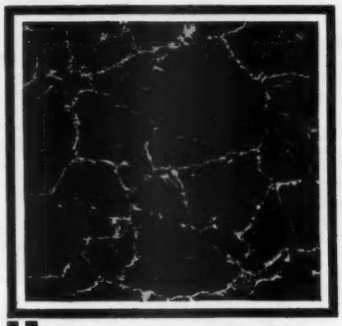
WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending September 14

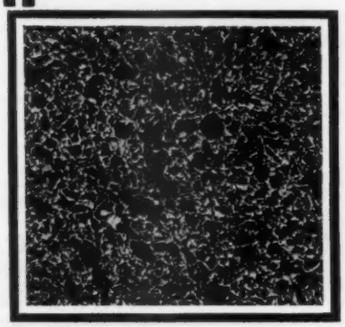
Company, well, farm name, section and block—	Remarks:
CARSON COUNTY	
El Paso-Amarillo O. & G. Co.'s No. 1 Champan, 594 ft. S, 1,455 ft. E, Sec. 7, Blk. 3, A.B.&M. Sur.	Drlg. 1,700 ft.
Empire G. & F. Co.'s No. 1 Poling, 1,320 ft. S and W, Sec. 23, Blk. Y-2, T.T.R.R. Sur.	Drlg. 1,930 ft.
Magnolia Pet. Co.'s No. 1 Connell, 330 ft. N and E, SE, Sec. 66, Blk. 4, H.&G.N. Sur.	Spud.
CHILDRESS COUNTY	
C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
The Texas Company's No. 1 A. S. Daver, 1,335 ft. from N line and 656 ft. from W line, Sec. 31, Blk. 4, I.&G.N. Sur.	Location.
COLLINGSWORTH COUNTY	
Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	Underreaming 535 ft.
Downey et al's No. 1 Beasley, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur.	Rig up.
GRAY COUNTY	
Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, I.&G.N. Sur.	Rig.
Back & Barber's No. 1 Back, 990 ft. S, 330 ft. W, Sec. 45, Blk. 25, H.&G.N. Sur.	Moving in tools.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur.	Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW. Sec. 93, Blk. 3, I.&G.N. Sur.	Cleaning out; T.D. 1,150 ft.
Humble O. & R. Co.'s No. 1 Hughey, C NE, Sec. 154, Blk. 3, I.&G.N. Sur.	Killed gas to fish; T.D. 2,720 ft.
Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur.	Rig.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur.	Drlg. 2,730 ft.
Magnolia Pet. Co.'s No. 1 Heaston, NE cor. S½ NE, Sec. 164, Blk. 3, I.&G.N. Sur.	Rig on ground.
Saunders et al's No. 2 Sullivan, 822 ft. from W and 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur.	Will plug back to 3,275 ft. and shoot.
Sherwood's No. 1 Morse, 990 ft. N, 990 ft. W, NW, Sec. 15, Blk. A-9, H.&G.N. Sur.	Top pay 2,580-2,698 ft.; 300,000 ft. gas, 800 ft. oil in hole; T.D. 2,703 ft.

(Continued on Page 84)

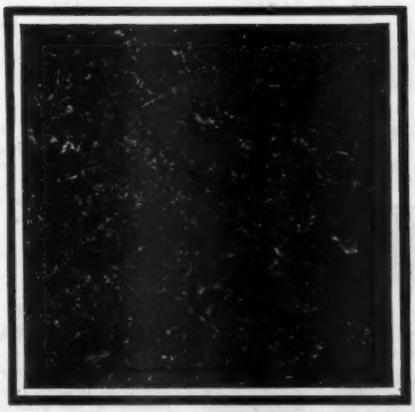
NEW and Better Sucker Rods by "OILWELL'S" *TRIPLE TREATMENT*



★ Actual photomicrograph of grain structure after forging of box and pin.



★ Actual photomicrograph of grain structure after *Normalizing*, only the *first step* in "Oilwell's" *Triple Treatment*.



★ Actual photomicrograph of grain structure after "Oilwell's" *Triple Treatment* to combine Strength, Toughness and Ductility.

The microscope reveals the reason why "Oilwell" Triple Treatment Sucker Rods give much superior results in actual field tests. Coarse grain structure denotes lack of strength, while a very fine, homogeneous grain structure indicates great strength.

The Triple Treatment of normalizing, quenching and tempering produces a rod of uniform grain structure from end to end, fully heat treated like the best tool steels, with the most desirable combination of strength, toughness and ductility.

"Oilwell" Triple Treatment Sucker Rods will reduce your lifting costs.

★ Photographed under microscope; magnified 100 times.

OIL WELL SUPPLY CO.

Branch Stores in all Oil Fields

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

1886

Pipe Line Construction News

Stanolind Awards Contracts for 280 Miles of New Line

The Stanolind Pipe Line Co. has let contracts for the construction of 280 miles of 10 and 12-inch loops for its system from Oklahoma to Chicago. Additional pumps and engines are also being installed on the line, many of these being purchased at this time while some units are being moved from the company's line from Wyoming which recently was leased for transportation of natural gas.

The new loops will add greatly to the capacity of the Stanolind system and while all of the additional capacity may not be needed at this time, the company felt it would be a constructive and helpful measure if it constructed the loops now.

Contracts for the pipe for the line have been awarded to the Republic Steel Corp., National Tube Co., Youngstown Sheet & Tube Co., and the A. O. Smith Corp. The loops will be Linde welded.

The Sheehan Pipe Line Construction Co., Tulsa, was awarded the contract for construction of the loops in Illinois, these consisting of 48.5 miles of 12-inch and 29.3 miles of 10-inch. Ford, Bacon & Davis was given the contract for the new work in Missouri and Oklahoma, these loops including 26.6 miles of 10-inch and 13.7 miles of 12-inch in Oklahoma and 49.9 miles of 12-inch, 36.5 miles of 12-inch, 3.8 miles of 10-inch and 7.9 miles of 10-inch in Missouri. Connor & Son, of Kansas City, were given the contract for the construction of 22.7 miles of 10-inch and 42 miles of 12-inch in Kansas.

SKELLY CO. DISPOSES OF GAS LINE INTEREST

Another unit in the organization, construction and operation of the Panhandle-Chicago natural gas line recently finished has withdrawn from the Natural Gas Co. of America, the operating unit.

The Skelly Oil Co. has sold its interest to the corporation and will confine its operations to the oil business and not attempt an expansion program that would eventually entail future activities in the natural distribution business.

The Phillips Petroleum Co. recently sold its interest to The Texas Corporation for approximately $5,500,000. The amount that the Skelly company received was not divulged, but it was for practically the same amount and possibly more, as the Skelly company also disposed of 28,000 acres of gas acreage to the Natural Gas Pipe Line Co.

Originally the Phillips Petroleum Co., Skelly Oil Co., The Texas Corporation and Columbian Carbon Co. owned a 23 per cent interest, with the Insull group, Cities Service Co. and Standard Oil Co. of New Jersey each owning a 23 per cent interest, and the remainder of the stock being held in the treasury of the Natural Gas Co. of America.

CANTON-EUREKA LINE

Kelly Dempsey Pipe Line Construction Co. is making very satisfactory progress on the Independent Pipe Line Co.'s line from near Canton, Kans., to near Eureka, Kans. This is 70 miles of 6-inch line.

TO OPEN BIDS

The City of Lincoln, Nebr., will open bids September 22 on 132,600 feet of water supply line. It will be of either cast iron, steel or wrought iron. Bids will also be open for 19,645 feet of 36 and 30 and 24-inch, the line to be laid from the city wells to the reservoir near Ashton.

INDUSTRIES IN OMAHA MAY USE NATURAL GAS

OMAHA, Neb., Sept. 14.—The city of Omaha, the American Smelting & Refining Co. and the Northern Natural Gas Co. are in a controversy over the efforts of the gas company to supply natural gas to the smelter, although the city of Omaha has twice voted against the use of natural gas in the city. The Northern Natural Gas Co. is to at once lay a pipe line from Council Bluffs, Iowa, where it now has a big 24-inch pipe line bringing gas up from Oklahoma and Texas, across the Missouri River to the smelter plant where oil has been used in the past. In Omaha the city owns the gas plant, which provides manufactured gas. The city has taken the position it has the exclusive right to furnish gas.

On the other hand the smelting company has taken the position that since its pipe line does not cross a street or other city property, the municipality cannot interefere with the natural gas.

The pipe line crosses the Missouri River on the street railway company's bridge, a private crossing. The smelter property goes to the water's edge. Just before the pipe line reaches the Nebraska bank, and while yet over the water, there is to be an aerial crossing from the bridge to the smelter property. In this way the landing of the pipe line will be on the private property of the smelting company. The company claims the city of Omaha cannot interefere with the pipe nor with the gas.

The Omaha plant of the American Smelting & Refining Co. smelts and refines silver and lead, and is said to be the largest smelter of this kind in the country. Formerly gold from the Black Hills, Colorado, and Utah and Montana mines were refined at the Omaha plant but no gold is refined there now.

The smelter has been closed down for about six months, the company claiming the work could be done more economically at points where natural gas was available. The reopening of the plant depends upon whether natural gas can be secured. If the city does not stop the pipe line now being laid, the plant is to reopen as soon as the connection is completed, about the middle of October. Employment will then be provided for from 350 to 400 workmen. If the natural gas is not permitted to reach the smelter, the plant will not be reopened, its managers say.

If the smelter company's contentions are upheld, it is believed other Omaha industries along the Missouri River bank will secure gas service in the same manner. This will include the Nebraska Power Co., Union Pacific shops and a number of other big users of fuel. A pipe line from Iowa, crossing the river, can reach each of these plants without crossing streets of the city.

The Northern company announces pipe has already been ordered and delivery is expected by September 16. The city has not yet decided whether it will fight the case, but will go into court before the connection is completed, should it decide to fight.

In a case involving a gas line brought to a packing plant in Sioux City, recently decided by the United States District Court, and not appealed to the Supreme Court, the holding was that where a pipe line did not go over public property, no franchise was required. In the Sioux City case the line passed over a railroad right of way and directly from that into the packing plant. It was also held in that case that a pipe line laid along a railroad overhead crossing did not conflict with the city's street rights beneath. If this method should be used in Omaha, the natural gas lines can reach the great packing houses at South Omaha, as well as most of the big industrial plants of Omaha, by crossing the Missouri River on Union Pacific Railroad bridge and continuing on the railroad right-of-way to the industries.

PRAIRIE AUTHORIZED TO ESTABLISH NEW RATE

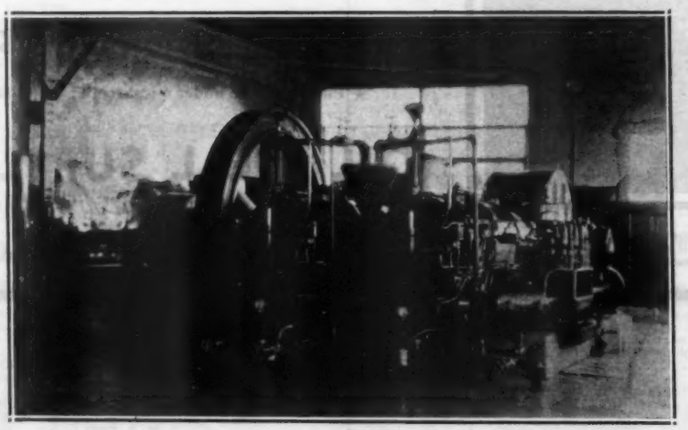
WASHINGTON, D. C., Sept. 14.—The Prairie Pipe Line Co. was authorized by the Interestate Commerce Commission, effective today, to establish a rate of 15 cents a barrel on oil transported from Oklahoma and Texas to Coffeyville, Kans., and a rate of 30¾ cents a barrel to Kansas City, Kans. It is said that the new rates, which will mean the movement of stripper and storage oil, were prompted by martial law in both states which, the commission was informed, prevented refineries at the two points obtaining their usual supplies of oil.

The chief beneficiary of the movement, it is understood, is the Sinclair company, which is soon to be merged with the Prairie interests.

EXTENSIONS AT TABER

CHATHAM, Ontario, Sept. 12.—Canadian Western Natural Gas Co. of Calgary is extending its distributing system in the residential section of Taber, Alberta.

MAIN OIL LINE TWIN PUMPING UNIT



Interior view of station on one of the trunk pipe lines extending to Port Arthur, Tex.

TEXAS-EMPIRE LINE MAKING SPEED RECORD

HOUSTON, Tex., Sept. 14.—The Texas Empire Pipe Line Co. has completed the laying of its 12-inch trunk line out of East Texas from Rieber Station, the northern terminus, as far south as Sour Lake, and by October 20 will be running oil. Pipe also has been strung for the section from Sour Lake to Port Arthur and while this section will not be ready for use it will not prevent operation of the Rieber-Sour Lake portion which will be tied into the Texas Pipe Line Co.'s present system to Port Arthur temporarily. Station work on the project is about 80 per cent completed but as the line passes through the Douglass Station of the Texas Pipe Line Co., midway between East Texas and Sour Lake that station can handle the oil until the other stations can be completed.

What is believed to be a record for speed has been set so far on this line. First work on the project was started on August 21 and before a month the Reiber-Sour Lake portion, consisting of 173 miles, has been completed. The Sour Lake-Port Arthur strip could have been put in except for the fact that that portion goes through irrigated rice farms, which at present are under water, delaying starting of work.

Laying of the line has been under the direction of the Texas Pipe Line Co. with the work being given to three contracting companies, the Gregg Construction Co. of Longview, the Apex Construction Co. of Lufkin and the N. A. Saigh Co. of San Antonio. The companies have had as many as eight crews on the project at one time to facilitate the work. Pipe also was supplied by five different companies, each of which had completed their portions of the shipments within a week after the project was determined upon.

PIPE LINE HEARING AT AUSTIN, SEPT. 23

AUSTIN, Tex., Sept. 14.—First hearing of the Railroad Commission on the establishment of rates and regulations for all pipe lines and storage facilities for crude oil has been set for Wednesday, September 23, in Austin. Notice of the hearing, which was signed by all three commissioners is the first step toward administration of the new pipe line law.

Senator Thomas G. Pollard of Tyler and Representative E. M. Davis of Brownwood were authors of the law, House Bill 19.

The commission will set rates, based upon testimony adduced at the hearing, which all common carrier pipe lines and storage facilities may charge for the transportation or storage of crude oil.

The order issued by the commission gives notice that it will consider any discrimination in service or rates that may exist.

PIPE LINE TO REGINA AWAITS FRANCHISE VOTE

CHATHAM, Ontario, Sept. 12.—Ratepayers of Regina, Saskatchewan, will vote shortly on the granting of a natural gas franchise to Power Corp. of Canada. The company plans a 175-mile pipe line from the Bowdoin Field in Montana to Regina, which, with a complete local distributing system, is expected to cost $8,000,000. The franchise provides for inclusion in the company's capital structure of a sum of not less than $250,000 and not more than $500,000 to be spent in geological, geophysical, engineering, prospecting and drilling operations for the purpose of testing and developing natural gas fields in southern Saskatchewan during a period of five years.

action!

PLENTY of it... Fast, efficient action for every pipe handling need. Sturdy, sure-footed action for every condition of service. Records for speed. Records for low cost. Records for continuous trouble-free performance. Thousands of miles of pipe line and hundreds of completed contracts bear testimony to the kind of action you can expect from Trackson McCormick-Deering Crawler Tractors.

TRACKSON COMPANY, 1321 So. First St., Milwaukee, Wis.

TRACKSON
McCORMICK-DEERING

Close-up of Soviet Oil Field Workers

Returned American Engineer Tells of Failure to Grasp Technical Problems. Some Amusing Causes for Delay

By L. G. E. Bignell
Petroleum Engineering Editor

Under the guidance of the leaders of the United Socialistic Soviet of Russia it is a country of inconsistencies where all standards recognized by the European or American countries are reversed and the little knowledge possessed by their own technical advisers and scholars is disregarded and their advice unheeded, according to Prof. R. C. Beckstrom, petroleum engineer of Tulsa, recently returned from a one-year stay in Russia where he went as technical adviser to the Russian Oil Trust.

It is admitted that there are many learned and experienced men in Russia who are capable, and in many instances very willing, to aid the Soviet states in building up their industries and placing them upon a working basis. As mathematicians some of their technical men rank high and handle calculus and higher mathematics as the average engineer in this country deals with problems in arithmetic.

The reason why technical knowledge is not applied to their many problems is because of the system that has been built up under Communistic rule where the governing class of about 1,500,000 people direct and force their wishes upon a population of about 160,000,000 others.

Under this Communistic system it quite often happens that the managers of the various enterprises have been elevated to their present position of power from the ranks of the workers, not because they have ever demonstrated any ability to direct enterprises such as the Soviets are trying to build up in every industry, but rather because they are staunch believers and followers of the Communistic party principles.

Technical Difficulties

As all workers are equal in their rights under the Communistic system it is frequently the case that the manager recently elevated from the ranks has for his assistant a technically trained man who formerly occupied a high post under the old regime. This reversal of positions has its psychological effect upon both men, the one realizing that the other has greater ability and resenting it, and the other regarding his superior officer with disdain, and out of this grows an adverse condition that does not aid in making for efficiency.

The Communistic principles teach the followers of the Soviet to look with suspicion upon all that is capitalistic or has ever been linked in any way with the former governments and enterprises of the old Russia. On the other hand, the technician finds it hard to explain his solution of the problems presented to him by his superior officer in terms that the latter can understand.

It therefore follows that when technical problems are presented and recommendations made by the technical advisers they are almost always looked upon with suspicion by the official in charge and in many instances the advice is not followed simply because the workman elevated to the high position is not capable of passing any judgment upon the project and feels that it is quite possible that the advice is biased and given to benefit the great capitalistic nations outside of Russia.

Usually a meeting is called of everyone who might be even remotely interested in the matter and it is discussed at length. Much of the time is spent in quite meaningless and useless talk about matters outside the province of the problem under consideration. The meeting degenerates into a general wrangle and no constructive thoughts are advanced and any decision finally reached is based more upon politics and policy than upon technical principles or good judgment.

When the plan is put into use it is found that something essential has been overlooked and the thing will not work and the technical adviser is then blamed. For this reason the progress being made is really slow even though the general plans outlined by the supreme council for the U. S. S. R. are of great magnitude.

Write to the Papers

In addition to this trouble in the managerial departments of various industries there is also the drawback imposed by the workmen themselves, who because of their equal rights are constantly writing long articles to the papers criticizing the things that have been done and accusing their superior officers of wrongdoing.

In Russia the accused is always regarded as guilty until he can prove otherwise and it has been found in numerous instances that the complaints grow after one has been made until by the time of the hearing the accused is confronted with so many charges that it is almost useless to make any defense. He is then transferred to some other industry where he is again placed at the head of other important work or is demoted and sent back to the ranks.

It all goes to show that Communism does not change human nature and this fact was recognized by Stalin when he recently made the proposal that those in charge of important work should be properly reimbursed for their services. While this may lead to greater efforts on the part of those in charge of enterprises it will only bring down upon their heads more envy from the workers and more accusations of wrong.

So-Called American Well

To illustrate the general inefficiency in the oil industry in Soviet Russia, where Professor Beckstrom spent most of his year's time, he told of some of the work on the so-called "American" well in the Baku Field. It received this title because it had over the hole an American steel derrick, the only one in actual use in that great field. One other steel derrick had been erected some time previously but the crownblock had been put on backward and rather than take it down and change it the drilling operations were never begun.

Work on the "American" well had progressed to that point where the first string of casing was to be cemented. The pipe had been run and the American cementing outfit, complete in every detail, was at the well to handle the cement. A great crowd had gathered to see this operation and everyone watched with great eagerness because it was always felt that something would or should happen to any foreign equipment used in Russia. The crowd was evidently greatly disappointed because the derrick did not fail when the casing was run, for the opinion was freely advanced by many of the onlookers that the steel derrick could not handle pipe as well as the great bulky wooden ones they built themselves.

The superintendent in charge of the work came on the job at about 10 a. m. and made a show at making an inspection of the equipment and then selecting a position where he could be seen by all of the crowd, made a gesture with the right hand upraised over his head which signified that the work should begin.

Two Sample Delays

The gesture was recognized by the cementing crew all right but nothing began. The superintendent then went to investigate, as did the American engineer who was directing the operations at this well. It was discovered that while the instructions had been given that a certain number of sacks of cement were to be delivered to the location for this cementing job someone had failed to do his part and the cement was not there.

There was a delay while cement was secured and then everything was again inspected by the Russian superintendent and he took his position and gave the Soviet salute which was the order to start operations. Again nothing happened and the superintendent and the American engineer both rushed to the cementing outfit to see what was the matter and found that while they had been waiting for the cement to be delivered the engines had been kept running and all of the gasoline had been used up.

More delay while another supply of gasoline was secured and the job that was to have started at 10 a. m. actually was finished at 2 p. m. the next day.

Other production operations are on a parity with this cementing job but because of their character the damage done may be much more serious, if anything could be considered as serious by a Russian. If they do anything there that is unusual and are asked why they do not change and do it in another way they simply answer: "Nitchevo!" This means literally, "What's the use," and is accompanied by a grimace and that is the general Russian attitude toward most things and customs.

Flow Pipe Practice

When a well is finished in the Baku Field, located on the Caspian Sea and a most prolific oil-producing area where 21 separate sands are found, it is usual practice to run a flow pipe from the well head to a pit located at from 100 feet to three-quarters of a mile from the well. The pit is placed where open space is to be had, or where the digging is easiest or for any one of a dozen reasons, but never with regard to the efficient operation of the well.

The pipe has two ends, even in Russia, the one at the well head and the other over the pit, but here the likeness to other flow lines ceases. The pipe line may run uphill at any angle, may make numerous and unnecessary turns, and may in other places place a back pressure on the well, but it always end in a small penthouse built out of heavy timbers so spaced that the hot oil at temperatures of above 130° F. after striking against some of them will spray out between the openings in the house walls and fall into the pit.

This method is followed because many years ago the operators found that the Baku wells produced a lot of sand along with the oil and if the production from the wells was turned into closed tanks the tanks filled with sand and had to be cleaned out. The oil is produced from

OIL PRODUCERS' SALES AGENCY ORGANIZED IN EAST TEXAS AREA

By L. E. Bredberg

DALLAS, Tex., Sept. 14.—Owners and gas operators of oil and gas mineral leases in the counties of Rusk, Gregg, Smith and Upshur, which constitute what is known as the East Texas district, met in Dallas Thursday to perfect an association which is to be named the Oil Producers Sales Agency of Texas. The purpose of this organization is to furnish facilities and agencies for the members of the association who have unrefined oil, wet or dry natural gas, casinghead gasoline and kindred substances to market.

The association is to gather and disseminate among the members all available information as to the costs of production in Texas and elsewhere, prices, stocks on hand, approximate cost of transportation from points of production to points of deliveries, and to find the readiest and most available market, and market prices of said products, and to procure such other data and information as may be of value in the operations of the members and in carrying on the business of the agency, with the end in view of establishing more economic methods of operation.

It also requires its members to conform to and obey the laws of the State of Texas, and orders, rules and regulations issued by the Railroad Commission, and other governmental agencies, to prevent all forms of wasteful production of said products, and help in the stabilization of the oil and gas industry in Texas. Waste is to be discouraged, and conservation of oil and gas encouraged by the agency.

Producers may become members upon being elected to membership by the executive committee and signing the by-laws.

Nonprofit Association

The agency is to be a co-operative and nonprofit association patterned after the California Association which is reported to have been functioning to the benefit of its members and of the industry in that State. S. A. Guiberson, Jr., who is a member of the executive committee of the California Sales Agency, was one of the moving spirits of the Texas Association, and is a member of the executive committee.

A temporary executive committee was chosen at the Dallas meeting, these men to be appointed permanently if they choose to remain on the committee, or withdrawing if impossible to serve: J. R. Pearson of Tyler, chairman; Tom Cranfill, Dallas; Col. J. Lewis Thompson, Longview; Charles E. Yager, Fort Worth; Sam McCorkle, secretary, Mexia; Charles F. Roeser, Fort Worth; W. L. Scott, E. L. Smith, Mexia; S. A. Guiberson, Jr., Dallas; J. K. Hughes, Mexia; J. R. L. Wheelock, W. C. Oil Co.; W. C. Nelson, Cordova Union Oil Co.; Charles Dori, Superior Oil Co.; C. P. Burton, Burton Drilling Co.; Harold Byrd, Dallas; Claude Hamil, Hamil and Smith; Fred Dulaney, Stoddard and Dulaney; W. C. Stroube of Stroube and Stroube, Corsicana; Frank Condon, Hawkeye Petroleum Co.; Harry Reynolds of Cranfill & Reynolds, Houston; J. S. Miller of the Devonian Oil Co.; J. F. Lucey, Dallas; T. P. Roberts and W. L. Todd, Dallas.

Approximately 50,000 bbls. of daily production was guaranteed for the agency with around 10,000 acres of proven leases. These figures were given by men who attended the meeting, and from producers who had been kueried by Mr. McCorkle previous to the meeting. Other producers are expected to join the agency throwing several thousand more barrels of crude per day to the agency's credit, and raising the number of proven acres connected with the association.

Not in Competitive Sense

The executive committee met immediately after the general meeting, and the agency is entering the East Texas market not in a competitive sense, but in an effort to pool the independent and smaller companies' production, obtain larger and stronger markets, and maintain a better price for the high gravity crude oil produced in the district.

At the present time the agency is localized to East Texas, but if successful is expected to expand to other fields and districts in the State. It will probably be incorporated under the laws of Delaware or Louisiana. Headquarters will probably be in Dallas.

Accurate over the ENTIRE Range

OTHER flow controllers have charts reading directly in rate of flow with graduations which become progressively wider from center to outside—the so-called progressive or square root chart.

The result is that the accuracy, readability and controlability will be less and less as the rate of flow decreases. Accuracy over the entire working range can be obtained by using a chart reading directly in rate of flow but *uniformly graduated*—like the one shown.

With this chart, TAG offers a real improvement in flow control equipment. The uniformity of graduations is made possible by the special design of the differential pressure gage—one leg of the manometer being made progressively smaller in diameter so that its curved cross-section produces uniform float motion per increment of change in flow. This TAG Linear-Flow Differential Gage will give the same guaranteed accuracy and equally precise control anywhere on the chart from 14% to 100% flow.

The following superior constructional features will be found in TAG Flow Instruments:

NO PRESSURE—TIGHT BEARING
POWERFUL FLOAT MOVEMENT
MERCURY BLOW-OUT CHECK
TAG BALANCING CONTROL

Send for Bulletin No. 1020— 50, completely describing the:—TAG Flow Recorder - Controllers for Liquids — TAG Flow Meters and TAG Orifice Meters for Gases—TAG Flow Recorder - Controllers for Gases—TAG Liquid Level Recorder-Controllers.

C. J. TAGliabue Mfg. Co.
Park & Nostrand Aves.,
Brooklyn, N. Y.

TAG FLOW
INSTRUMENTS

the well in prodigious quantities and as it was cheap the actual recovery meant little to the operators.

So their first concern was to settle the sand out of the oil and by spraying the oil against a barrier made of heavy timbers the oil and gas would be separated and the sand fall into the pit. The pits are usually filled with water, or in any event they soon accumulate a body of rain water and the thin layer of oil is therefore floated on this surface of water around the pit until it reaches the ditch leading from the pit to some distant pump station.

Professor Beckstrom states that at one of these pits he paced the distance traveled by the thin film of oil on the water surface of the pond and found that it moved about 150 to 200 yards, or completely around the pit, and was discharged close to the place of entry.

Waste Disregarded

The oil left the pit in an open dug ditch and this again exposed the oil to the elements because the ditch was dug in the most convenient manner possible without regard to its length. Loss through seepage is great and often the end of the ditch is at a pump station located some distance from the well when other stations are much nearer.

As a result of this inefficient way of handling the fresh oil not more than 5 or 10 per cent of the wells' production finally reaches the refineries for treatment. But as the wells are large and the flow is unrestricted the Russians give no consideration to this waste.

In a few cases tanks are used for handling the oil but here again little judgment is used for in one instance it was found that a small pumping well making about 10 bbls. of good oil was being produced into a tank along with cut oil from other wells making about 50 bbls. of oil. Another tank was available on the same lease so the good and cut oil should have been separated, but to the Russian this was not necessary for it took little extra effort to treat the 10 bbls. of good oil contaminated by the 50 bbls. of cut oil.

The use of steel tanks is not looked upon with favor by the modern Russian producing men because the sand will quickly fill them and to remove it men must shovel it out. This they do not want to do but they seem to have no objection to shoveling the sand out of the pits as they are filled.

According to Professor Beckstrom, the whole method of handling oil is about on a par with the above examples of inefficiency.

THIRD ISSUE OF DEEP WELL DRILLING ISSUED

The third edition of "Deep Well Drilling" by Walter H. Jeffery, is just off the press and contains a fund of new and valuable information on drilling that should be of interest to both the laymen and those actively engaged in the petroleum industry.

In 1921, Mr. Jeffery found that there was need for a book of this kind which would present facts about development of petroleum properties and at that time issued his first edition. It was followed by a second edition in 1925 and it is most interesting to compare those older books with this new edition and note the great strides made in the art of drilling for oil and gas.

Following a brief review of geology as applied to petroleum, the book takes up the rotary system of drilling and deals with all phases of this type of work, then devotes considerable space to standard or cable tool methods. Straight hole drilling is covered.

Such details as water supply for drilling, cementing methods, use of packers, shooting wells, completing wells, the gas-air lift method of producing oil, pumping oil wells and cost of drilling wells in various locations are also given. The book makes a very comprehensive medium for ready reference on practically all subjects related to prospecting for oil and gas.

The book sells for $6 per copy and may be obtained direct from Mr. Jeffery, 1620 Second National Bank Building, Toledo, Ohio.

RECENT DISCOVERY NEAR DARST CREEK FIELD AN IMPORTANT FIND

By B. D. Stevenson

SAN ANTONIO, Tex., Sept. 14.—John F. Camp's No. 1 Sue Denman, a mile southwest of production in the Darst Creek Field, is one of the most important tests drilled in the Balcones Fault zone within a year. It came in August 27 with an initial flow at the rate of 8,200 bbls. a day. The position of the well with relation to the Darst Creek Field and W. J. Walton's No. 1 Zobrolski flowing about 8 bbls. daily from the chalk at 2,210 feet is shown on the accompanying map, which also shows the position of the Magnolia Petroleum Co.'s No. 1 Roamel which came in for 42,000 bbls., a crevice well and the biggest well in the field. The Camp well is located about one-half mile north of the Guadalupe River and 1,650 feet from the east line of the survey.

While some believe that the well will be an extension of the Darst Creek Field proving to be another westward swing of the line of production such as in the older part of the field and also in the Bruner Field, there are factors entering into it that indicate a separate pool. Elevation is 435 feet to the derrick floor. Top of the chalk was reached at 2,450 feet and top of the Edwards lime at 2,495 feet and total depth is 2,507 feet. Gravity is 35.5 A.P.I. corrected. In the southwesterly end of the Darst Creek Field the subsurface contours swing in toward the fault and define the southern end of the producing district at a structural height of 115 feet below the apex of the field as developed 2 miles northeast in the Knoblock area.

The Camp well is 4,800 feet southwest of the Sun Oil Co.'s No. 1 Dowdy which is a small well with considerable water from the Edwards at a point 1,800 feet southwest of the other Dowdy wells and with a structural position 15 feet below them and only a few feet above the water table.

Humble Oil & Refining Co.'s No. 2 Dowdy, a dry hole is 900 feet west of the southerly end of the field and a downthrow well. It developed a displacement of 96 feet on the top of the Edwards showing that the main Darst Creek fault with a displacement of 600 feet in the Knoblock area is dying out toward the southwest.

The Camp well penetrated a fault at the top of the Edwards lime going immediately into the Edwards from beds 45 feet below the top of the Chalk and showing a faulting out of 335 feet of intervening beds. Had the well been as much as 50 feet to the west it probably would have failed to produce. The alignment of the fault thus proven is offset from the extended line of the Darst Creek fault a distance of 1,000 feet or more.

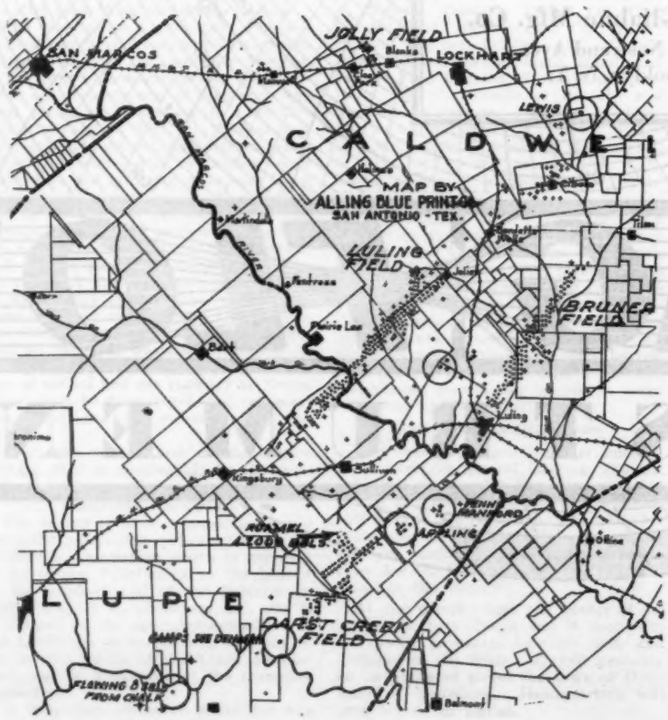
The structural elevation of the Edwards datum in the Camp well is 60 feet above that of the Sun Oil Co.'s No. 1 Dowdy and 70 feet below the highest producing well in the Knoblock area. The top of the producing zone is about 65 feet above the elevation of the water plane of the Darst Creek Field.

These structural positions and fault alignments, it is thought, show that the main Darst Creek fault terminates near the Dowdy area and that the producing beds recede in structural elevation into or possibly below the water plane of the Darst Creek Field and that the fault is offset about 1,000 feet to the west of the southerly part of the Dowdy area and that the beds are arched up against this fault in a southwesterly direction, thus cutting off the Denman area from the main Darst Creek producing field, as it is now defined.

This is further borne out by the fact that the Camp well builds up a rock pressure of 200 pounds per square inch at the casinghead, while the pressure in the Darst Creek Field is lower.

How much higher in structural elevation the arching may carry the producing zone in the Denman area and to what distance toward the southwest the production may extend along this offset are unknown quantities but this discovery will certainly stimulate much drilling in that direction when the wildcatter again has his day.

The Darst Creek Field was discovered late in 1929. According to the latest gauge taken as of September 1, 1931, the pool shows a potential of 126,482 bbls. daily for a total of 259 wells, which is a little over half what the potential was on May 18, 1930, when it reached a peak of 245,864 bbls. for 128 wells.



FIVE ASSOCIATIONS AFFILIATE INTO ONE

(Continued from Page 13)

pendents who have been fighting against heavy odds should ask the friendly majors to aid them in combating the anti-conservation foes." I believe the majors who favor conservation should help bear the burden," said Mr. Roeser, who urged the new association to go on record for an appointive commission, and for an organization to uphold conservation.

J. A. Pearson, of the East Texas steering committee, Tyler, Tex., was strongly in favor of organizing the several separate independent organizations into one strong organization to better carry on the proposed fight for stabilization of the oil industry in Texas. He also favored the independent and major conservationists aligning themselves together against the anticonservationists, as did Mr. Thompson and Mr. Roeser.

Burford Ridicules Reports

F. W. Burford, president of the East Texas Refining Co., urged the formation of one association which can present a united front to the legislature and Railroad Commission and the people of Texas. He expressed confidence in the fairness of the people of the State toward the oil industry, and declared they can get a square deal regardless of all the legal talent, lobbying and money spent in behalf of the fight against conservation by those who opposed it.

Mr. Burford branded as absurd the report that the independent refiners were being put out of business by the past shutdown and the increase in the price of crude to 68 cents. He said he would rather pay 68 cents for oil for his refineries and see stabilized conditions than buy 10 and 15-cent oil and the industry remain in a chaotic condition. "A refiner who cannot stay in business for 30 days should not be in the business," declared Mr. Burford. "We should be in the business permanently."

J. K. Hughes, of Mexia, was vehement in his denunciation of operators who produced their oil at such low prices as have prevailed, and said no producer is going to make money producing at the present 68-cent price. "Some may make a little money at the present prices and feel rich," declared Mr. Hughes, "but operators who amount to anything are in the business to stay and want to see better prices." He contended that the operators should cut down the amount of oil produced, thereby raising the price of oil. "Keep it in the ground," he said. "That is the fundamental thing to do."

Joe Weaver said the fight for conservation had terminated in politics, and that a new association, with members and many, was needed to carry on the fight to stabilize the industry.

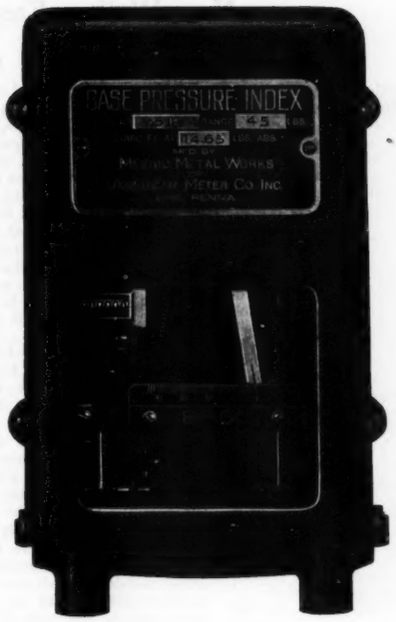
Plans for a general membership meeting during which permanent officers of the association will be chosen were outlined. The executive committee decided the organization should operate on a permanent basis rather than on a one or two-year plan.

Temporary vice presidents of the association named are: J. S. Bridwell of Wichita Falls; F. W. Burford, Robert R. Penn and S. A. Guiberson, Jr., all of Dallas; Col. J. Lewis Thompson, Jake Harmon, Longview; H. L. Hunt of Tyler; Ed Mayer of Amarillo; John Gholson of Ranger; Ed Landreth of Fort Worth; George Morgan of San Angelo; Frank Zoch of San Antonio; George Sawtelle of Houston; Harry Reynolds of Houston; R. L. Wheelock of Corsicana; E. L. Smith of Mexia; Marrs McLean of Beaumont, and John O'Donohoe of Wichita Falls.

HOWE SUCCEEDS WILSON

R. W. Howe, of the Atlantic Pipe Line Co., Dallas, Tex., has been made national chairman of the American Petroleum Institute's division of production committee on the standardization of steel tanks for oil storage. He succeeds C. O. Wilson, resigned. W. C. Shutts, Humble Oil & Refining Co., Houston, Tex., has become national secretary of the committee, succeeding Mark W. Daw, resigned.

You Can Obtain Direct Results with the METRIC BASE PRESSURE INDEX



THE Metric Base Pressure Index provides direct readings of the quantity of gas in cubic feet at the pressure on which the contract is based. It is not necessary to use or calculate charts. However, charts can be used on a Volume and Pressure Gage with this instrument if permanent records are required.

This Index can be used on all sizes and types of Displacement Meters. The regular index is removed and the Base Pressure Index is installed in its place. Adjustments for changes of atmospheric pressure and base pressure can be made in the field without any new parts. The integration is carefully checked at the factory and tested for accuracy.

Write for Bulletin E-12

The Volume and Pressure Gage installed on top of Base Pressure Index.

METRIC METAL WORKS
ERIE, PENNSYLVANIA
Sheet-Case, Pressed Steel Case and Graphic Meters

AMERICAN METER COMPANY
INCORPORATED
The World's Largest Manufacturers of Gas Meters and Allied Apparatus
ESTABLISHED 1836

SALES . . . ERIE - DALLAS - TULSA - DENVER - LOS ANGELES - SAN FRANCISCO - KANSAS CITY - BIRMINGHAM
SERVICE . . PITTSBURGH - CHICAGO - PHILADELPHIA - NEW YORK - BALTIMORE - BOSTON - ALBANY - HOUSTON

Pipe Lines Active in Oklahoma City Pool

Preparing for Time When Martial Law Ends by Connecting to New Wells. East Side Shallow Fields Being Developed

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Crude oil production in Oklahoma shows a decline for the week ending September 12, of approximately 400 bbls. a day. The daily average of the week was approximately 255,800 bbls. a day. The production is coming mostly from the old fields in the State as the prorated areas, which were the flush fields in the State, were shut down August 4, and are still shut in under martial law with the exception of a few wells that are producing a large volume of water.

During the week Champlin Refining Co. filed another suit in Federal Court at Guthrie for a rehearing of a decision upholding Oklahoma's proration laws, and an injunction against their enforcement by Governor Murray, or the State Corporation Commission.

Governor Murray's martial law closing down the flush fields in the State, is still in effect, and he says that martial law will remain in effect until a general price of $1 a barrel for crude oil prevails.

At the recent meeting in Oklahoma City it was recommended that the State of Oklahoma have an allowable of 546,000 bbls. of oil a day, compared to the current week's output which was approximately 256,000 bbls. a day leaves a difference of 290,000 bbls. of oil which will later be produced from the prorated areas.

Stanolind Pipe Line Co. announced during the week it would construct 285 miles of loops on its main line from Healdton, Okla., to Whiting, Ind. The new pipe line will consist of 90 miles of 10-inch pipe and 195 miles of 12-inch pipe. The new loops will increase the capacity of the pipe line from 75,000 bbls. a day to 90,000 bbls. a day.

Activity Expected to Increase

Activity is expected to increase in the Oklahoma City Field, both in the extreme north end of the field and in the southwest edge of area, but operators have been delaying the work owing to the uncertainty of the price of crude oil and as to when the shutdown orders will be lifted. A number of offset leases have locations which will be drilled. These locations were staked months ago. Pipe line shipments increased during the week, the crude oil coming from storage. No oil has been reported sold above the posted price.

According to Field Umpire Bradford the production of the Oklahoma City Field from September 1 to September 11, was 74,785 bbls. of oil. The majority of the production was from recently completed wells and wells completing their eight-hour initial gauge. The umpire's report shows that 423,490 bbls. of oil was in lease storage at 7 a. m., September 11. The total pipe line shipments from the field to September 11 were 149,155 bbls. of oil, an average of 14,915 bbls. a day. The umpire reports that the witnessed potential of wells completed in the field shows a total of 8,421,305 bbls., based on the four-hour flow of individual wells multiplied by six, but from which 33⅓ per cent is deducted by the Corporation Commission in arriving at its official potential figure. As a matter of fact if all the wells in the field were permitted to flow at one time it is doubtful if they would produce much over 1,000,000 bbls. a day for any considerable period.

The crude oil purchasing companies in the Oklahoma City Field continue to build pipe lines to producing properties. The Stanolind Pipe Line Co. has completed connections to several leases in the north end of the field. It has connected to Tom Slick Oil Co.'s properties and has extended its lines to ten of the Phillips Petroleum Co.'s leases. It is believed these properties were connected under long term contracts. The Stanolind Pipe Line Co. is building an 8-inch loop from the main part of the field to its pump station on the edge of the field. It is believed the additional capacity will prevent congestion in gathering lines.

The Continental Pipe Line Co. recently completed a gathering line to the properties of the Westgate Oil Co. in the north end of the field, in which it recently purchased a half interest. It is believed the completion of the transaction between the Continental Oil Co. and the Westgate Oil Co. will not be completed for another month. Attorneys are checking the titles to the properties.

New Wells

During the week the following wells were added to the Oklahoma City Field while the daily production is being held at low levels due to the executive shut down. On the west side of the field Eason Oil Co.'s No. 1 Rodesney, NW cor. NW NW SE, Section 15-11-3w, flowed 7,938 bbls. of oil in six hours and was shut in from sand at 6,419-6,529 feet, with an estimated 25,000,000 feet of gas a day. In the north end of the field Champlin Refining Co. and Hall & Briscoe's No. 4 Central, SW cor. NW SE, Section 3-11-3w, on Block 22, Central Addition, was completed and flowed 6,232 bbls. of oil in seven hours and was shut in. The gas was estimated at 30,000,000 feet a day. The oil and gas were found in the Wilcox sand at 6,280-6,406 feet.

A producing well in the Oklahoma City Field was drilled deeper and failed to increase its production. Tom Slick Oil Co.'s No. 3 Central, SE cor., Section 3-11-3w, in the north end, was drilled from 6,335 feet to 6,552 feet and was swabbing with several hundred feet of oil in the hole. There was not enough gas to make the well flow. The same company's No. 4 Central, NE cor. SE SE, Section 3-11-3w, was drilling deeper at 6,461 feet and is expected to make another production test. It was bailed down at 6,298 feet and made approximately 10,000,000 feet of gas and only a small quantity of oil.

The leasing of acreage in Oklahoma for future oil development is at its lowest ebb in many years, following the paring down of expenses by major oil companies, but during the last few weeks several tracts have changed hands. The majority of the trading has been in the vicinity of old production or in territory likely to receive a drilling play in the next two years.

Major oil companies still continue to reduce their wildcat acreage holdings in the State following attempts to reduce the yearly rentals to 25 and 50 cents per acre a year instead of the old customary price of $1 an acre per year. Some estimate that approximately 5,000,000 acres of leases have been surrendered since the first of the year, and it is estimated that rentals have been reduced on equally that much land. Reports from the Indian agencies for the fiscal year show that the percentage of cancellations are lower on Indian lands than on other properties. This is believed to be due to the fact that the bonus paid on Indian lands has been lower.

Few Scattered Leases Taken

The following new leases were of record the first of September: To the Prairie Oil & Gas Co., N half NE Section 34-6-6; to the Cosden Oil Co., the SW NE and west 15 acres of Section 18-10-8, Seminole County. In Pottawatomie County, Gypsy Oil Co. has leased the W half NW Section 28-9-3 and the SW NW Section 5-8-5. Indian Territory Illuminating Oil Co. has taken E half SW Section 3-6-4. In Cleveland County the Gypsy Oil Co. has leased the NW of Section 17-9-1w, and N half NW Section 8-9-1w. M. B. Smith and others have taken the NW NE Section 35-7-1. In Caddo County, O. E. Gardner has taken the NE Section 10-9-11w. In McClain County, Gypsy Oil Co. has taken the E half E half Section 25-7-2w. Kay County operations have been as follows: Prairie Oil & Gas Co. has taken the NW Section 9-28-5; The Texas Company has taken the N half SW Section 22-28-1w; Carmott Drilling Co. has taken the SW NE Section 24-28-3. In Garfield County, Gypsy Oil Co. has leased the SW Section 31-22-4w, and W half SW Section 2-22-3w; The Texas Company has taken the SE Section 14-20-3w; Indian Territory Illuminating Oil Co. has leased the N half SW Section 25-21-8w; and M. J. Frantz has leased the S half Section 4-23-7w. In Lincoln County, Gypsy Oil Co. has leased the NW Section 36-14-2. In Alfalfa County, Pure Oil Co. has leased the SE Section 34-25-10w, and NW Section 35-25-10w. In southern Oklahoma, in Stephens County, E. B. Cox has leased the SW NW NW Section 12-1s-7w, NE NE and E half NW NE Section 11-1s-7w. Twin State Oil Co. has leased the W half NE NE and NW NE and W half SE NE and NE NE SE and N half SW Section 29-2s-6w, for 10 years.

The acreage oil companies are surrendering is mostly in the northwestern, western and southwestern parts of the State. The Empire Oil & Refining Co. is releasing its block of acreage in the southeastern part of Harper County, on which it drilled a dry hole to a total depth of 7,935 feet early in the year. The test was No. 1 Bruce, C NE SW, Section 12-25-20w. The acreage being released includes parts of Sections 2, 14, 10, 15, 22, 27 in Township 25-20w, and parts of Sections 8, 9 and 16 in Township 25-21w.

In Dewey County, the Indian Territory Illuminating Oil Co. has released the SW, Section 25-17-16w; SW, Section 20-19-18w; SE SW, Section 31-19-17w; S half SE and SE NE, Section 19-19-18w; SW NW, Section 20-19-18w; SW, Section 11-19-18w and SW NW, Section 20-19-18w. Kingwood Oil Co. has released SE Section 13-17-19w, SE NW NE, Section 4-17-20w, and NW, Section 17-16-14w.

In Blaine County, the Sinclair Oil & Gas Co. has surrendered leases on N half SW, Section 11-19-10w; N half N half SW, Section 13-19-12w; S half NE and E half SE, Section 14-19-12w, and the NW, Section 8-15-12w.

In Grant County, Sinclair Oil & Gas Co. has released the W half NE, Section 22-26-3w, and S half NE, Section 35-28-8w. Mid-Kansas Oil & Gas Co. has re-

(Continued on Page 74)

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No 1 Forbes, SE cor. NW NW, Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE, Sec. 14-24-11w	Shut down 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW, Sec. 31-1-13	Rig.
Edgerton Edwards' No. 2 Rowland, SE NE NW, Sec. 6-1-15	Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW, Sec. 34-8-26w	T. D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW, Sec. 22-11-22w	Waiting on cement to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW, Sec. 17-3-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor., Sec. 34-10-24w	Shut down 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Shut down 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 34-6-13w	Shut down 1,115 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McCraw, NE NW Sec. 2-1s-8	Location.
McCraw Oil Co.'s No. 1 Ward, NE SE, Sec. 35-1-8	Drlg. plug; showing 2,000,000 ft. gas 1,765-1,846 ft.
Whitney et al's No. 1 Miller, SE NE, Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW, Sec. 3-3-9w	Shut down 1,450 ft.

LE FLORE COUNTY

H. E. Dowd et al's No. 1 Unknown, SE NE, Sec. 17-3-22	Drlg. 1,125 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW, Sec. 9-24-6w	Shut down 5,850 ft.

GARVIN COUNTY

Malarnee et al's No 1 Phillips, NE SW SE, Sec. 24-2-2w	Shut down 4,830 ft.
Skinner's No. 1 Elrod, SW cor., Sec. 13-2-3	Abandoned 1,120 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor., Sec. 1-7-22w	5,000,000 ft. gas 1,455-65 ft.; T. D. 1,760 ft.
French's No. 1 Murphy, SW NW, Sec. 23-7-21w	Shut down 1,645 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w	20,000,000 ft. gas 5,350-5,400 ft.; T. D. 8,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE, Sec 14-9-19	Shut down 650 ft.
Ault et al's No. 1 Hall, NW SW SW, Sec. 14-9-19	Shut down 2,000 ft.
Ault et al's No. 1 Hall, SE NW, Sec. 25-9-19	Shut down 200 ft.
Holden's No. 1 Phillips, SE cor., Sec. 3-9-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW, Sec. 10-9-18e	Shut down 3,387 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW, Sec. 15-5-11	Shut down 1,645 ft.

JOHNSTON COUNTY

Gilbreath's No. 1 Readon, SE NW NE NE Sec. 17-4s-5	Rig.

KAY COUNTY

Lewis et al's No. 1 Harris, SE NW, Sec. 14-25-1	Location.
Mummert Drlg. Co. et al's No 1 Cormick, C NW SE, Sec. 9-27-2	Shut down 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w	Rig on ground.

KIOWA COUNTY

Arresmith & Walker's No. 1 Potts, SE cor. Sec. 31-7-14w	Show oil 125-34 ft.; shut down 290 ft.

(Continued on Page 62)

Keeping the Lid On in Kansas Fields

Landowners in Schurr Pool Ask That the Pool Be Opened to Production but Commission Refuses. Big Potentials

By W. A. Spinney
Staff Correspondent, Kansas Fields

Kansas' production was increased during the week ending September 12 to a total of approximately 100.400 bbls. of oil a day, an increase of approximately 1,800 bbls. a day from the previous week. A survey of field operations in the different areas in the State indicates that 38 counties are active, with McPherson County leading with a total of 50 operations. While the development is below that of a year ago, the State has a total of 140 operations divided as follows, 30 rigs and locations, 64 were drilling, and 46 were shut down.

Landowners with royalty in the Schurr Pool, in Rice County, Kansas, have asked the Public Service Commission to allow producers to open their wells and produce them at the rate of 200 bbls. per well per day. The landowners are charging they are being deprived of any income whatsoever from oil wells on their land. In the application is a request that the meeting be held in Lyons, Kans., 17 miles from the pool, as early as possible, to accommodate the landowners who are financially unable to go either to Topeka or Wichita.

The Schurr Pool was discovered in August, 1929, and has 11 completed wells with estimated potential of 17,000 bbls. per day. These wells were recently ordered closed indefinitely by the Public Service Commission at a hearing held in Wichita, September 9, on the application of the state oil advisory committee.

Schurr Pool Restricted

The production from the Schurr Pool has been restricted since it was first discovered. The first few wells completed were allowed to produce 50 bbls. per well per day, which was purchased by the Independent Oil & Gas Co. and shipped out in tank cars from a loading rack, nearby. The Prairie Pipe Line Co. completed a pipe line into the area in December, 1930, and purchased approximately 50 bbls. of oil per well per day from the field during the month of December and then withdrew as a purchaser of crude oil January 1, 1931, and since that time all the production in the field has been shut in. The landowners claim in the application that the wells in the pool are capable of making from 2,000 to 3,000 bbls. of oil a day. The commission in the application is asked to permit the wells to produce 100 per cent for a sufficient length of time to recover an amount of oil that will be equal to that which has been recovered from the Ritz-Canton Pool, in McPherson County, and the Eastborough Pool, in Sedgwick County. It is pointed out in the application that the Schurr Pool was discovered before either the Eastborough Pool in Sedgwick County or the Voshell Pool and Ritz-Canton Pool in McPherson County.

The application identifies the landowners as follows: William Schurr, A. W. Mezger, D. L. Snyder, C. F. Mezger, G. F. Binger, E. Mezger, G. F. Kelly, W. H. Williamson, Martha Schurr, H. F. Thompson and W. W. Thompson. Companies owning wells in the field are Slick, Pryor & Lockhart, The Texas Company, Phillips Petroleum Co., Vickers Petroleum Co., Allison-Fitzwilliam Corp. and Producers & Refiners Corp.

The daily average crude oil production during the last month from the State indicates that the producers are co-operating with the curtailment program. The State has been producing on an average of 12,000 bbls. a day less than the allowable during that time. All the flush pools in the State are being restricted, same being shut in 100 per cent, as in the case of the eight producing areas in Ellsworth, Rice, Barton and Stafford Counties, where the operators prefer to keep the oil in the ground until the price of crude oil warrants it being produced.

Ritz-Canton Pool

The State's largest flush field, the Ritz-Canton area in McPherson County, is producing less than 10 per cent of its potential production. The daily average for the week ending August 31 was 3,750 bbls. a day and 8,300 bbls. a day the week ending September 7, with an estimated daily potential of 125,000 bbls. The producers have been co-operating with the Kansas Public Service Commission and some of the pipe line companies have withdrawn from the area, but it is expected these companies will start purchasing crude again in a few days. The commission has repeatedly changed its orders in regard to the allowable from the Ritz-Canton and the last order allowed the producers to operate their wells at 10 per cent of the potential. The commission first allowed the companies paying $1 a barrel to purchase oil, and later changed the order shutting down the field entirely. The order was later modified and the commission allowed the producers to operate the wells 10 per cent of the potential.

Some express the opinion that only approximately 10 per cent of the proven locations have been drilled in the Ritz-Canton area. Development work has proved an area 8 miles north and south and 6 miles east and west. There were 90 oil wells in the Ritz-Canton area September 9. Besides the oil production the area has the largest amount of open flow gas production in the State. On the extreme northwest edge and the extreme northeast edge of the field gas production has been developed which can yield an open flow of approximately 1,200,000,000 feet of gas a day. The limits of the oil and gas production have not been defined and it is believed the area will experience a drilling boom when conditions are normal. The Hugoton gas field in the southwestern part of the State has an open flow of approximately 700,000,000 feet a day from 125 completed wells and is second in size in the State of Kansas at the present time. This field also has considerable proven acreage and locations which are expected to be developed in the near future to supply the large interstate gas pipe lines that are under construction.

The producing area in the Ritz-Canton Field was extended during the week a location to the northwest on the west side of the field. Lario Oil & Gas Co. and Shell Petroleum Corp.'s No. 1 in the SE cor. NW, Section 24-19-2w, was an old chat producing well completed in March, 1931, for 4,500,000 feet of gas from the chat at 2,912-48 feet. It was drilled deeper to the Viola lime where it made 73 bbls. of oil the first hour and 72 bbls. the second from the pay at 3,390-95 feet. The well also extends the Viola lime production a half mile to the west.

The southeastern limits of the Ritz-Canton Field were believed to have been defined by the finding of water in a test on that side of the field. Smith and others' No. 1, NW cor. SW, Section 5-20-1w, found a hole full of water in the bottom of the chat at 3,020-60 feet and was shut down at a total depth of 3,063 feet. The test had approximately 2,000,000 feet of gas in the top of the chat at 2,955-90 feet.

Another test on the southern edge of the field found gas in the chat and extended the producing area a half mile to the east. Schaffer Oil Co. and others' No. 1 in the SW cor. NE, Section 7-20-1w, found what is estimated to be 5,000,000 feet of gas in the chat at 2,938-57 feet.

Confer With Commission

Operators with production in the Schurr Pool near Raymond in Rice County, met with members of the Kansas Public Service Commission September 9, and the commission stated that it feared if the lid was lifted and the wells permitted to produce at this time it might serve as a serious obstacle to the adoption of a general plan of curtailment in the Mid-Continent area. The Kansas Public Service Commission ordered the Schurr Pool, at Raymond in Rice County, remain closed indefinitely at the hearing.

While some of the operators objected to the decision of keeping the pool shut in, all the operators and others interested in the field accepted the view of the commission in so far as it concerns the future price of crude oil in Kansas. It was indicated by members of the Public Service Commission that unless a uniform curtailment plan is adopted by the different Mid-Continent oil states some change of policy in Kansas will be necessary.

It is expected that another meeting of Schurr Pool operators will be held before the end of the month. A member of the commission said that if the Schurr Pool, or any of the shut-in pools in central western Kansas, was opened at present it would result in the issuance of an order by the commission closing them in. The commission does not think it would be to the interests of the State to increase its production at the present time until the Texas Railroad Commission has had a chance to try out the new order in the East Texas Field.

It is believed that Governor Woodring does not care to use the National Guard to enforce curtailment orders in the State. But the Public Service Commission indicated that it was of the opinion that no such measure was necessary in Kansas owing to the tendency of the operators to co-operate.

The Schurr Pool hearing brought out several facts which the commission considered important. Some expressed the opinion that if the pool was opened and produced and drilling resumed there was a possibility that the area would be yielding an average of 50,000 bbls. a day within a few months.

Recently the Phillips Petroleum Co. gave notice to all the other operators that it intended to open its wells and the Stanolind Crude Oil Purchasing Co. was to purchase the oil on an exchange basis. The Kansas Public Service Commission then ordered the production in the pool to remain closed.

Those present at the hearing were J. W. Russell, The Texas Company; H. L. McQuiston, Phillips Petroleum Co.; L. R. Travis, Abilene Oil Co.; Clay Tallman, general counsel for the Stanolind Crude Oil Purchasing Co.; A. E. Lloyd and J. A. Vickers, Vickers Petroleum Co.; Marvin Lee and Ralph Pryor of Slick, Pryor & Lockhart.

Wildcat Abandoned

The wildcat test in the northwestern part of Rice County which was showing oil and water is being abandoned after a shot. Detrich and Langston's No. 1 in the NW cor. Section 33-18-9w, a wildcat test believed to be on the Ellsworth Arch, found a hole full of water in the Silicious lime at 3,319-75 feet and was plugged to a showing of oil found in the conglomerate at 3,265-80 feet. It was shot with 15 quarts and filled up 500 feet in the hole with oil and water. The owners were pulling the casing to abandon.

Deep Pay in Eastborough

The deep pay horizon in the north end of Eastborough Pool in Sedgwick County was proven with the completion of the second well during the week. The completion of the well may lead to additional drilling in the area. Magnolia Petroleum Co.'s No. 5 Wheeler, which was originally

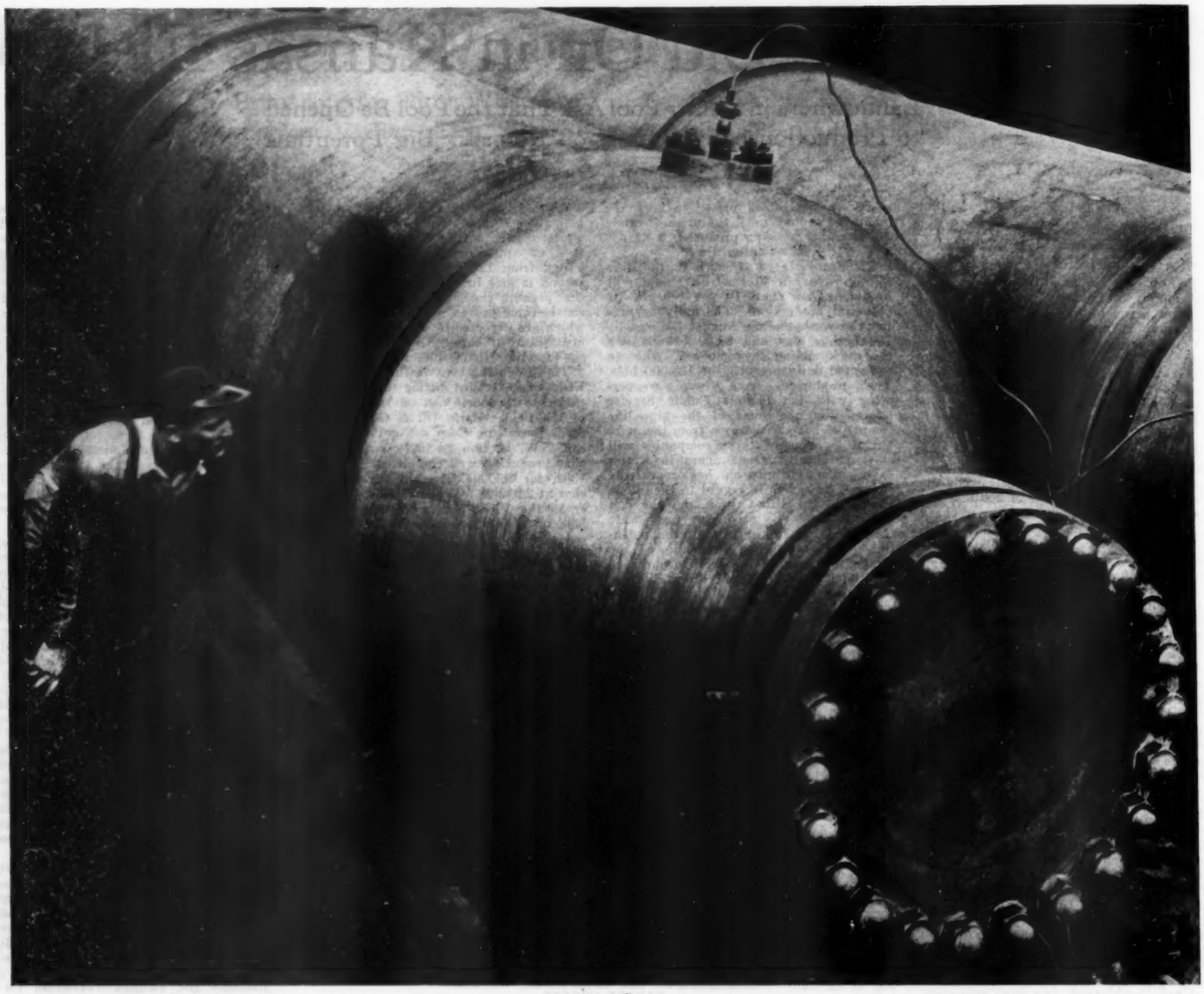
(Continued on Page 79)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE Sec. 13-18-12w	Shut down 2,440 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Drlg. 2,660 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 13-20-11w	Drlg. 2,210 ft.
CHASE COUNTY	
Borden et al's No. 1 Atkinson, NW SE Sec. 18-18-7	Rig on ground.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor. Sec 19-8-2	Shut down 2,700 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,565 ft.
COWLEY COUNTY	
Slocum et al's No. 1 Union National Bank, C SW SW Sec. 16-35-4	Spudding.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Shut down 4,170 ft.
ELLSWORTH COUNTY	
Keyes Bros.' No. 1 Gregory, SW cor. Sec. 23-16-9w	Shut down 2,735 ft.
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; est. 2,000 bbls.; no pipe line connections.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Silicious lime 3,332-47 ft.; est. 1,500 bbls. a day; shut in.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Shut down 3,576 ft.; Conglomerate 3,214-50 ft.; hole full water.
FINNEY COUNTY	
National Ref. Co.'s No. 1 Wells, SW cor. Sec. 13-23-30w	Rig on ground.
FORD COUNTY	
Carter Oil Co.'s No 1 Everett, C NE Sec. 22-29-21w	Drlg. 5,691 ft.
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w	Shut down 5,105 ft.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w	Shut down 4,648 ft.
HASKELL COUNTY	
Tree Oil Co.'s No. 1 Warner, C SE Sec. 29-30-34w	Drlg. 550 ft.
HARVEY COUNTY	
Liggett et al's No. 1 Davis, SW SE NE Sec. 7-24-1	Drlg. 690 ft.
J. P. Flannigan's No. 1 Sheridan, C SW Sec. 32-22-1	Drlg. 2,960 ft.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor. Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; shut down; estimated at 600 bbls. a day.
LINCOLN COUNTY	
Buck et al's No. 1 Schuls, C SE NE SW Sec. 19-11-6w	Rig on ground.
MORTON COUNTY	
Hydraulic Oil Co's No. 1 State Land, NW SE Sec. 32-34-43w	T. D. 3,640 ft.; shut down.

(Continued on Page 62)



Bethlehem Seamless Refinery Vessel being subjected to Hydrostatic Test.

BETHLEHEM SEAMLESS REFINERY VESSELS ARE SAFE!

The strong, safe vessel for builders and operators of high-pressure cracking units is a Bethlehem Seamless One-Piece Forging, made from a single steel ingot. Because of this Company's years of experience in making all types of heavy forgings the user of Bethlehem Seamless Refinery Vessels is assured of a product of highest quality... The facilities at Bethlehem for the production of seamless refinery vessels are extensive, and adequate to meet individual needs over a wide range of diameters, lengths and wall thicknesses... Our representatives will be glad to discuss with you how these facilities may be utilized to meet your requirements.

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL

General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

Pacific Coast Distributor: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

Export Distributor: Bethlehem Steel Export Corporation, 25 Broadway, New York City.

New Pool Is Promised in Sabine Parish

Drill-Stem Test of Langbridge Oil Co.'s No. 1 Stephens Indicates Presence of Producing Dome in the Immediate Vicinity

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Sept. 14.—As predicted several weeks ago, the Langbridge Oil Co.'s No. 1 Stephens, Section 17-9-11, in the northern part of Sabine Parish, holds promise of opening up a new pool. The prediction was based upon paleontological reports from the test at that time, which showed a thinning of the Saratoga chalk, a distinct marker in this area.

The paleontology gave the top of the chalk at 1,832 feet and the base at 2,164 feet, showing a total thickness of only 332 feet.

In the Pleasant Hill Field, 5½ miles northwest of the Langbridge wildcat, the average thickness of the chalk is 488 feet, and several tests drilled to the south and southwest of the Langbridge showed a thickening of this formation. A drill stem test in the last week from 3,366-69 feet resulted in 480 feet of 39 gravity oil in the hole in one hour. The well was deepened to 3,506 feet without encountering any more sand, the 3 feet where the drill stem test was made being all of the productive formation, but no salt water appeared. Although the result of the test does not give promise of a producer of the gusher type, it does indicate that a new producing dome exists in that immediate vicinity. The operators are arranging to set 6-inch casing above the pay sand for a thorough test.

Urbana's Best Well Indicated

The best well to date in the Urbana Field of Union County, Arkansas, is indicated by reports from Wilson & Chapman's No. 1 H. Norman, 330 feet north and east from SW cor. SE NE in Section 3-18-13. A drill stem test from 3,567-83 feet developed 2,400 feet of pipe line oil in the hole in 17 minutes. The cap rock was encountered from 3,560-65 feet, volcanic ash from 3,565-67 feet where the oil sand was topped and penetrated 16 feet to the total depth of 3,583 feet.

This is the thickest stratum of oil-bearing sand yet encountered in the Urbana Field. This is the third good producer in an extension about 1 mile northeast of previous proven production, Wilson & Chapman being the owners and operators of all of them. Their No. 1 Parker, southwest in the same section, was completed May 21, flowing 250 bbls. daily from 3,565 feet, and No. 1 Adkins, an offset to the west of the new producer, was completed July 9 flowing 500 bbls. daily from 3,610 feet. Their first test in this area, No. 1 Hadley, one-half mile west and south of their producing wells, has been temporarily abandoned at 3,570 feet with 600 feet of fluid in the hole, 30 per cent of which was salt water. This would indicate a definite trend of production to the east and north of the small proven area. The thickness of the oil-bearing sand in the new well gives promise of real gushers in this northern extension, and is looked upon as the biggest development in many months in the Arkansas fields.

Arkansas Wildcats Slow

The wildcats in Arkansas are making slow progress. The Lion Oil Refining Co.'s No. 9-A Hayes, a deep test in Section 4-16-15, near the Ouachita Parish line in the Smackover Field, is drilling in sand rock at 5,291 feet. The Zepp Oil Co.'s No. 2 Hillman, Section 20-10-13, Dallas County, is drilling in streaks of sandy lime at 1,800 feet, and in Drew County, the Co-operative Development Co. is drilling at 1,931 feet on its No. 1 Hardy, Section 6-13-7. Lawrence B. Cook, trustee's No. 1 McGhee Planting Co., Section 5-8-7, had drill stem stuck at 2,800 feet which was pulled into at 1,800 feet, leaving 1,000 feet in the hole. The Ozark Natural Gas Co. has made location to drill No. 1 Hammonds, Section 29-10-29, in Crawford County, and the Drillers Oil & Development Co. has derrick up on its No. 1 Pickering in Section 1-17-16 in Union County.

Not an oil well was reported out of five completions for the week, which consisted of one gas well and four dry holes. In Ouachita Parish of the Monroe Field, Carbons Consolidated completed its No. 6 Guthrie, Section 49-20-4e, with an initial flow of 13,950,000 feet of gas from 2,138 feet. The Ozark Natural Gas Co.'s No. 1 Girard, Section 34-8-30, in Sebastian County, Arkansas, was dry and abandoned at 3,092 feet. Three of the border counties of East Texas turned in one dry hole each as follows: Cass County, John Nelson's No. 1 S. A. Irvin, McNary Harris Survey, abandoned at 3,738 feet; Harrison County, O. O. Olford and others' No. 1 Bolding, W. W. O. Stanfield Survey, abandoned at 2,688 feet, and in Marion County, Hindman & Rhondo abandoned their No. 1 McGaughery, W. J. Willis Survey, at 3,910 feet. Paleontological reports record the top of the Georgetown lime in this well at 3,904 feet.

Brisk Drilling in North Louisiana

Drilling operations in North Louisiana continue at a brisk pace in comparison with recent months. In Bienville Parish, the Arcadia Drilling Co. has resumed drilling on its No. 1 Atkins, Section 27-18-6, the latest report having the total depth at 2,385 feet in the upper Nacatoch formation. The United Gas Public Service Co. is rigging up No. 1 Bussa, Section 33-23-16, in the Rhodessa Trinity gas field, northwest Caddo Parish. The new test is in the same section and in the same vicinity as this company's No. 1 M. K. Smith which was completed recently as a 3,400,000-foot gasser from 5,690 feet.

W. P. Wallace, trustee's No. 2 Cunningham-O'Conner, Section 15-17-14, near the city limits of Shreveport, missed the gas sand altogether in the Blossom formation around the 2,040-foot level and is drilling ahead to the Woodbine at 2,640 feet. In DeSoto Parish, E. T. Oakes is drilling at 2,285 feet in his No. 1 Bryant and others, Section 30-13-15. The operators report the base of the chalk in this well at 2,149 feet.

The Rellitt Oil Co.'s No. 1 Gannon heirs, Section 12-11-16, on the eastern edge of DeSoto Parish near the town of Logansport, is setting 4½-inch with packer and perforated at 1,965 feet to test a good show of gas encountered at that depth. The Pelican Natural Gas Co. is drilling at 3,565 feet on its No. 1 Long Bell Lumber Co., Section 3-1n-3w. This test is located on a large block in Rapides Parish, and officials of the company state that it will be temporarily abandoned at 3,600 feet unless pay is reached before that depth. The drilling contract on the block called for only a 2,500-foot test, and as no show anywhere along the log has been encountered thus far, the operators will abandon it temporarily.

A wildcat several miles northwest of the Zwolle Field in Sabine Parish, made a test this week with disappointing results. The test is R. L. Gay's No. 1-A Long Bell Lumber Co. in Section 10-8-13, which developed about 200 bbls. of light high-grade oil and 500 feet of salt water from 3,623-37 feet after a drill stem test. In Union Parish, Dan Brooks' No. 1 Douglas, Section 9-22-2w, is drilling in gumbo at 3,481 feet after topping the red beds at 3,043 feet.

Wildcatting Slows Down

Wildcatting in the border counties of East Texas has slowed down to a minimum, only a few actively drilling and most of them shut down for lack of funds or drilling equipment. In Bowie County, Logan & Elliott's No. 1 Smith, Charles Lewis Survey, is drilling at 3,150 feet, and the only active rig this week in Cass County is George McKamie's No. 1 Hall, H. Buckler Survey, which has topped the Georgetown lime at 4,195 feet, usually a marker for abandonment in this vicinity. The United Production Co. is making rapid progress on its No. 11 Werner, D. B. Lewis Survey, a Trinity gas test in the Bethany Field of Panola County.

There is a prospect that E. L. Chapman may yet salvage his No. 1 Pickering Lumber Co., a wild gasser of a few weeks ago, on the C. E. Henry Survey, near the Louisiana line in northeastern Shelby County. The operators have succeeded in tying with cement about 400 feet of 12-inch surface casing, which collapsed with about 600 feet of 6-inch, and

(Continued on Page 70)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks:
Arcadia Drlg. Co.'s No. 1 Atkins, 175 ft. W, 120 ft. N, SE cor. NW NE, Sec. 27-18-6	Drlg. 2,385 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	S.D. 2,890 ft.
Flint River Oil Co.'s No. 1 DeMoss, 300 ft. S and E, NW cor. SE NW, Sec. 22-22-13	S.D. 3,046 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	S.D. 1,350 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11	S.D. 1,004 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13	S.D. 1,600 ft.

CADDO PARISH

W. P. Wallace, tr.'s No. 2 Cunningham-O'Conner, 210 ft. S, 940 ft. E, NW cor., Sec. 15-17-14	Drlg. 2,640 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	Set 12-in. csg. 110 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-2e	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	T.A. 3,097 ft.

CLAIBORNE—SUGAR CREEK

United Gas Public Service Co.'s No. 1 Treadwell & Hawk, 1,470 ft. S, 1,395 ft. E, NW cor., Sec. 6-19-5w	Set 12½-in. 1,517 ft.

DE SOTO PARISH

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15	S.D. 2,350 ft.
S. S. Meek, tr.'s No. 1 Wagner, 300 ft. S and E, NW cor. SE NW, Sec. 5-12-14	S.D. for fuel 2,861 ft.
Ben Merritt, tr.'s No. 1 Wallums, NE cor. SW SW, Sec. 19-12-12	Set 6-in. csg. 2,580 ft.; T.D. 2,657 ft.
E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-13-15	Drlg. 2,285 ft.
Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16	Set 4½-in. tubing 1,965 ft.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-12	S.D. 1,266 ft.

(Continued on Page 66)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location—	Remarks:
J. T. McCormick's No. 1 C. B. Christian, 330 ft. S, 300 ft. W, NE cor. SW, Sec. 27-21-15	S.D. 1,335 ft.
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15	S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	Set 10-in. 150 ft; S.D.

CADDO PARISH—GREENWOOD AREA

Pyramid O. & G. Co.'s No. 2 Breard, 723 ft. S, 660 ft. E, NW cor., Sec. 10-18-16	Reaming to bottom 2,750 ft.

CADDO-RHODESSA AREA

United Gas Public Service Co.'s No. 1 H. J. Bussa, Sec. 33-23-16, 990 ft. W and 660 ft. S of NE cor.	Rigging up.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4	Location.
Carbon Consolidated's No. 5 fee, 1,945 ft. N, 3,046 ft. W, SE NE, Sec. 21-20-4e	Drlg. 1,900 ft.

OUACHITA PARISH

Carbon Consolidated's No. 6 Guthrie, Sec. 49-20-4e, 6,985 ft. N, 6,013 ft. W from Common Corners, Secs. 49, 26 and 25	Completed for 13,950,000 ft. gas 2,138 ft.
Carbon Consolidated's No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N, and 7,475 ft. W of corners of Secs. 25, 26 and 49, in Sec. 50	Location.

RICHLAND PARISH

Southern Carbon Co.'s No. 1 J. A. Noe, Sec. 24-17-5, 3,291 ft. S, 660 ft. E, NW cor.	Set 6-in. 2,285 ft.
Southern Carbon Co.'s No. 1 Pollard, Sec. 26-16-5e, 2,710 ft. S and 563 ft. W of NE cor.	Location.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 2,640 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6	Rigging up.
Southern Carbon Co.'s No. 9 Rosengraut & Ducomb, 1,320 ft. N, 660 ft. E, SW cor., Sec. 18-17-6e	Set 6-in. 2,285 ft.
United Gas Public Service Co.'s No. 2 Cummings, 3,485 ft. W, 1,320 ft. N, SE cor., Sec. 24-17-5e	Drlg. 1,933 ft.
United Gas Public Service Co.'s No. 1-B La. State 2,354 ft. E, 1,922 ft. N, SW cor., Sec. 32-17-6e	Set 9-in. 916 ft.
United Gas Public Service Co.'s No. 1 C. H. Pipes, 2,447 ft. S, 178 ft. E, NW cor. SW, Sec. 35-17-6e	Set 9-in. 902 ft.

(Continued on Page 69)

Manvel Well Is Rated at 2,000 Barrels

Discovery Well of The Texas Company Considered Most Important Development on Gulf Coast This Year. Increasing Activity

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Sept. 14.—Manvel, a geophysical area in northern Brazoria County, was definitely added to the producing fields of the Gulf Coast the past week. The discovery well, The Texas Company's No. 1 Belcher, rated at 2,000 bbls. daily and brought in on September 9, is looked upon as one of the most important developments on the coast so far this year. The completion bears out the results of a drill stem test of the sand at a total depth of 5,483 feet two weeks ago in which the hole filled over 5,100 feet of oil in less than four minutes.

After washing the well came in without swabbing, putting 250 bbls. in the tanks in the first 30 minutes flowing through an inch choke while cleaning. It then was placed on an eleven-sixteenths-inch choke and later on a three-quarters-inch choke, flowing approximately 2,100 bbls. of pipe line oil in the first 24 hours. Pressure of the well gauged 425 pounds on the casing and 205 pounds on the liner. The oil is 25.9° with temperature of 92° and meets full specifications of "Grade A" although Grade A and Grade B specifications of coastal oil have been discontinued within the past several months.

Production is from a sand at a total depth of 5,483 feet with 18 feet of 7-inch screen in the hole. Above the screen are five joints of 6⅝-inch blank and a full string of 4½-inch liner to the top. The 9⅝-inch casing string is seated at 5,460 feet. As the first part of the sand is very tight, operators are of the opinion that the well really is producing from not much more than 10 feet of sand at the bottom. It is not known how much sand there is as it has not been drilled through. The sand is Oligocene, being about 700 feet down.

Holding Up Steadily

At latest report the well was holding up steadily, flowing Saturday 1,925 bbls. through a 1⅞-inch choke and without trace of water.

The well is one of the most carefully and thoroughly completed wildcats which has been brought in on the coast. Full preparations had been made for a good producer even to the laying of a line from the well to the main line of the Texas Pipe Line Co. from West Columbia to Houston and setting up of pumps. The well, however, is only approximately 1,500 feet from the main line and thus required the laying of very little pipe. A separator and two field storage tanks, moved from the company's leases at Humble, also had been set up and connected.

Manvel has been indicated by geophysical instruments as being a very deeply seated salt dome, believed to be centered around the Harvey N. Little Survey just to the north of the settlement of Manvel and approximately 20 miles south of Houston. For years it has been regarded by some as a "suspicious" area although since geophysical exploration came into being the many attempts to pick it up with instruments failed. It was not until 1929 that the Alexander & Smith Oil Co. of Houston went into the district and was able to check the dome, turning the prospect to The Texas Company, which since has done additional geophysical work there.

In the immediate Manvel district, not including the Fresno block, another geophysical prospect west of Manvel, The Texas Company now holds approximately 2,500 acres, virtually solid. Gulf Production Co. owns several small tracts and Shell Petroleum Corp. one 10-acre tract some distance from the discovery well and around the edges there are scattered unleased small tracts or pieces held by individuals but it might be safely stated that The Texas Company controls the entire prospect. Although a large part of the block is cut up into 10-acre tracts due to a colonization project years ago these tracts in reality are grouped under six ownerships.

Prospect 20 Years Old

The history of the Manvel area as an oil prospect dates back as long as 20 years ago to a time soon after W. R. Allison, Sr., now deceased, his son, W. R. Allison, and associates acquired a tract of approximately 50,000 acres in northern Brazoria County and southern Harris County and subdivided it for colonization. An oil company was organized by the subdividers for development of what is now known as the Manvel area. A shallow test was drilled some distance to the north of where The Texas Company has drilled. However, nothing important materialized but in 1929 these subdividers got the six main land owners together with a 2,300-acre block, the nucleus of The Texas Company's present block, and assigned it to the Alexander & Smith Oil Co., which had become interested in the area. The latter, after checking a salt dome, turned the block to The Texas Company.

This company made location for its first test, No. 1 A. F. Ewing, 50 feet out of the NE cor. of Lot 29, Suburban Garden Subdivision, Harvey N. Little Survey, or 2,400 feet west and slightly north of the present Belcher well. That test was started in February, 1930, and over a year later in April, 1931, was abandoned at a total depth of 7,648 feet in the Jackson. That test was much watched and created considerable interest when in a sand at a total depth of 7,589 feet it was brought in making a considerable volume of gas with pressure of 1,500 pounds. That was on March 6. The pressure declined quickly and on March 7 the well was dead. It then was deepened. That well also encountered the same sand from which the Belcher well is producing but approximately 100 feet lower and showed salt water on a drill stem test. Drilling of that test necessitated a long sidetracking job and of some interest is the fact that a total of 20,600 feet of pipe was set.

Drilling of the Belcher well, the second test, located 157 feet from the northwest line and 223 feet from the southwest line, Lot 18, Block A, was started in May soon after the abandonment of the Ewing test. For a long time it ran much lower than the Ewing test and was not looked upon with favor although drilling was continued to fulfill a 5,000-foot obligation. Within the last several hundred feet with some of the Oligocene found missing the test suddenly started running higher with the sand being topped just above the contract depth.

Fifth Field This Year

Manvel is the fifth salt dome field opened on the Gulf Coast this year. The other four in the order of their discovery are Leesville, LaFourche Parish, Louisiana (also opened by The Texas Company); Lockwood (Thompson), Fort Bend County, Texas; Lake Grand Ecaille, Plaquemines Parish, Louisiana; Bayou Choctaw, Iberville Parish, Louisiana. Another field, Iowa, Calcasieu Parish, Louisiana, also was opened but the discovery well proved short-lived and now is drilling deeper, and at Cameron Meadows, Cameron Parish, Louisiana, a small, but noncommercial, well was completed.

In this connection, Manvel is the twenty-sixth geophysically discovered salt dome or prospect on which commercial oil production has been found. On others short-lived production or gas has been found but these are not included in the 26. This also makes a total of 57 fields now producing in the salt dome area of the Gulf Coast, excluding Refugio and other such fields in the lower coastal country. There have been well over 100 prospects reported by geophysics. Many of these since have been condemned following unsuccessful drilling or after rechecking by instruments. Many, of course, never did give any great promise but were leased up hurriedly in the active play several years ago upon the slightest suspicion of being dome prospects. Of the geophysically discovered fields, 19 have been proved by the drill as being actual salt domes. Seventeen other geophysical areas, so far uncommercially productive, have been proved by cap rock or salt.

Increased Activity

Outside of the Manvel discovery there was very little of interest on the Gulf Coast during the week although there was further evidence of increased activity throughout the district. Many new operations were started in scattered fields, several additional areas where work has been suspended for several months being included. For several weeks there has been a trend toward a greater amount of development.

Only one new completion has been reported at Barbers Hill, this being Sun Oil Co.'s No. 1 Anna Higgins, on the southeast flank of the dome. This flowed 600 bbls. of fluid, 45 per cent water, through a half-inch choke from sand at 5,341 feet. Humphreys Corp.'s No. 1 Ebanspacker, extreme northeast flank of the dome, proved somewhat of a disappointment when it flowed salt water in sand at 4,469 feet. This is in the new shallow sand. The hole will be deepened to the lower sand from which other wells in that area are producing.

Two Barbers Hill Tests

Two additional tests were started in the new play on the east flank of Barbers Hill in an effort to prove the newly found sand close up on the dome above the Big lime. These were Humphreys Corp.'s No. 2 Tarbutton, 385 feet from the east line and 21 feet from the north line of the Tarbutton strip in the Henry Griffith, and Sun Oil Co.'s No. 11 Wilburn, 550 feet west of No. 5 and 50 feet from the north line of the Wilburn tract. These make a total of nine new operations which have been started up in this play following the completion of The Texas Company's discovery well last month. The Tarbutton test of Humphreys Corp. necessarily will be followed at once by at least a half dozen additional locations.

On the west flank of Barbers Hill, The Texas Company's No. 2 Winfree swabbed salt water at 5,753 feet and is being abandoned.

Humble Oil & Refining Co. has abandoned as dry its No. 2 State-Lake Washington on the Lake Grand Ecaille Dome, Plaquemines Parish, Louisiana. This test went into salt to a total depth of 1,883 feet. Drilling of this followed the completion early last summer of the same company's No. 4 Cockrell-Moran, discovery well of the dome, which flowed at the rate of 1,000 bbls. daily from the shallow cap rock. The Texas Company has abandoned its No. 1 L.L.&E., Bay St. Elaine Dome, Terrebonne Parish, Louisiana. This test drilled to a total depth of 5,700 feet, where drill stem was stuck and efforts to sidetrack failed, the hole being junked. Sunshine Oil Co. has abandoned its No. 1 Olliver, A. Viesca Survey, Polk County, as dry at 4,045 feet.

New Operations

New operations included Gulf Production Co.'s No. 33 Taylor, south flank of Pierce Junction. This dome has been inactive for several months. Gulf Refining Co. also is resuming development on its Stark Dome, Calcasieu Parish, Louisiana, where No. 28 Lutcher-Moore is being rigged up for an additional test in the shallow sand area overlying the dome. Gulf Production Co. has rigged up to deepen its No. 5 Boyt, Hankamer, following the recent abandonment of No. 14 Boyt as the first failure in the field proper. No. 5 was completed in March, 1930, in sand at a total depth of 2,791 feet.

GULF COAST FIELDS AND WILDCATS

Week Ended September 12
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 5 Wilburn, Henry Griffith League, 350 ft. W of No. 4 in C of lease	Cap rock 1,375 ft.; losing returns.
Gulf Production Co.'s No. 5 J. F. Wilburn, Henry Griffith League, 50 ft. from N line of tract and 210 ft. W of No. 1	Drlg. hard, sandy lime and shale 1,619 ft.
Humphreys Corp.'s No. 6 E. H. Winfree, W. D. Smith Sur., 50 ft. from N line and 50 ft. from W line of tract	Fishing drill pipe 5,886 ft.
Humphreys Corp.'s No. 1 Ebanspacker, Henry Griffith League, 700 ft. from the N line and 70.6 ft. from the E and W lines of the tract	Set 42 ft. of 7-in. screen 4,469 ft.; flowed salt water; pulling screen to deepen.
Humphreys Corp.'s No. 8-H Kirby, Henry Griffith League, 333 ft. W of No. 6-H Kirby and 70 ft. N of S line	Salt cavity 1,511 ft.; losing returns.
Humphreys Corp.'s No. 2 Tarbutton, Henry Griffith League, 385 ft. from E line and 21 ft. from N line of tract	Rig.
McAlbert Oil Co.'s No. 4 Wilburn, Henry Griffith League, 200 ft. W of No. 2 in C of lease, N and S	Drlg. salt 1,793 ft.; top salt 1,490 ft.
Rio Bravo Oil Co.'s No. 2 Fisher (W.O.), W. D. Smith Sur., 50 ft. out of NW cor. of tract	Pulling screen to deepen 5,390 ft.
Sinclair Oil & Gas Co.'s No. 8 Wilburn, Henry Griffith League, 350 ft. W of No. 7 and 48 ft. from N line of tract	Spudded.
Sun Oil Co.'s No. 1 Anna Higgins, Wm. Bloodgood Sur., 220 ft. from E line and 31 ft. from S line 10-acre tract	Comp. flowing 600 bbls. fluid, 45% salt water, 85 lbs. pressure, ½-in. choke, 5,341 ft.

(Continued on Page 65)

Flawless protective armor

Barrett Specification PIPE LINE ENAMELS

The effectiveness of a pipe line enamel depen ds largely upon the quantity and quality of the pitch contained. Properly refined coal-tar pitch, a s users proved to their satisfaction many years ago, is the soundest waterproofing agent known.

Barrett Specification Pipe Line Enamels have a high coal-tar pitch content and are produced under the most rigid laboratory control. Barrett's Pipe Line Enamels form a flawless, continuous armor and afford complete protection under every soil and climatic condition. For practical and technical help on any pipe line protection problem, write, telephone or wire.

The Barrett Company

40 Rector Street New York, N. Y.

The reproduction of a photomicrograph shows how flakes of the internal reinforcement used by Barrett tend to interlock. They laminate with the waterproofing agent and give Barrett Pipe Line Enamels unusual tensile strength and toughness.

For pipe of large diameter The Barrett Company will furnish equipment required to revolve pipe and spread enamel.

Nueces County Well Holding Attention

Most of the Pickup in Activity in Southwest Texas at Present Is in the Laredo District. Darst Creek's New Pool

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Sept. 14.—Completion of the Stanolind Oil & Gas Co.'s No. 1 Stratton in the southwest corner of Nueces County, 7 miles south of the Agua Dulce gas field, the nearest production, was delayed because the gas pressure was so strong it was thought best to weight the mud with baroid before running tubing. This was completed by the middle of the week and the crew started bringing in the well. Late last week it was not thoroughly cleaned but built up pressure of around 1,500 pounds, and measured by the experience of other fields in that part of the country should show a pressure of around 1,000 pounds when cleaned.

It is a foregone conclusion it will be a big gas well but later reports when the well is finally entirely completed may carry the information that it is making a lot of gasoline. Total depth is 4,752 feet. The regular production of gas in the Agua Dulce Field is at 2,000 feet with two wells of the Houston Oil Co. on the east side producing at 4,913 feet and making a lot of gas and some oil.

It is already pretty well established that from Kingsville on the south to the McFadden Field in southern Victoria on the north, a distance of 100 miles, with several producing spots in between, there is opportunity for considerable wildcatting. Production up to this time has been mainly gas. On the side of the Missouri Pacific Railroad from the Gulf, in a general way, there is some opportunity for study of surface geology but on the side toward the Gulf there is very little surface geology. The side toward the Gulf includes the territory just described and it is understood plans are being made by various interests to do considerably more geophysical work in this territory within the next six months.

The only other development of note in this territory other than the Stanolind's test was the final completion of the Gulf Coast Oil Co.'s No. 1 Maggie Harrell on the north edge of the Saxet Field in Nueces County at 4,553 feet to which depth it was plugged back from 5,225 feet. It first came in as a big gas well making about 75 bbls. of oil. Tubing was changed and a bottom hole choke put on and this brought the oil production to 158 bbls. The rig has now been moved off. Two other tests in the field, both north of production, are down pretty well, the Gulf Coast Oil Co.'s No. 1 Elder below 3,200 feet and the Neal-Milton and Kepley No. 1 Roark below 4,100 feet and neither has developed any interesting news thus far. On the north side of Nueces Bay in San Patricio County, Jacob Buzzini & Pickett's No. 2 Baldwin drilling below 3,700 feet is right at where they should pick up the sand that produced in the Aransas Oil Corp.'s No. 1 Welder about 2 miles to the north. The next few days' drilling is the most important for the test.

Laredo District

Most of the pick-up in activity in Southwest Texas at this time is in the Laredo district. Magnolia Petroleum Co. and French Oil Corp. are each starting tests, the Magnolia's in Survey 660 and French in Survey 659 in Webb County, the tests being offsets in the little pool of about 10 oil wells in Webb County about 3 miles north of the Cole oil pool. The territory between the two oil-producing spots is proven to gas. It is all located on the northwest part of the Cole gas and oil area that extends across the line into southwestern Duval County.

In northern Duval County in the extension to the Schoolfield-O'Byrne Pool three new tests are being started and some drilling activity will take place. Also in Zapata County in the Escobas-Muckelroy-Jennings area two or three new tests are starting and Killman is starting another test up near the town of Bruni in Webb County where he has also done some drilling and developed some production but not entirely tested out the area.

There was one completion in the Carolina-Texas Field last week, the Southern Gas Utilities Co.'s No. 1 Garza at 2,570 feet, in Block 12, Survey 336. It was drilled to around 2,000 feet some months ago by O. W. Killam and abandoned and later a deal made for deepening and it came in for 10,000,000 feet of gas.

Also the Humble Oil & Refining Co.'s No. 50 Kohler in the Kohler Field in Duval County was abandoned at 7,725 feet, the deepest test in the district. It was drilled in the field where leases are understood to have been perpetuated by the shallow production.

In the Balcones Fault district the chief interest has been in the completion of the John F. Camp's No. 1 Sue Denman opening a new pool southwest of the Darst Creek Pool. The well is now on production with an allowable of 924 bbls. daily. The next interest is in the test of the Humble, an east offset, which is now getting started and within another week should be down to the pay. The Humble test should, according to all calculations, be a producer but at the same time it will add a great deal of geologic information to the situation.

R. R. Lewis' No. 1 Keith McGee, in Caldwell County, has been delayed getting started by having to lay a water line. It spudded in and set a joint of surface casing. Its position with reference to other pools and proven fault lines is such that it is a very interesting test.

In Milam County the Red Bank Oil Co.'s No. 1 Foster reached a total depth of 4,685 feet where it developed a fishing job and had to come back to around 3,900 feet and sidetrack.

North of the fault line in the southern point of Blanco County, Theodore Hicks

(Continued on Page 72)

SOUTHWEST TEXAS PROVEN AREAS

COOKSEY POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Witherspoon Oil Co.'s No. 1 Anoil, 412 ft. W of C of E line of tract in J. W. Riall Sur.	70 ft.; shut down; previously reported as completion by error.

DOBROWOLSKI POOL—BEXAR COUNTY

W. S. Rogers et al's No. 1 L. Donnop, Juan Montes Sur.	T. D. 612 ft.; shut down.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tract, A. Floyd Sur.	T. D. 2,572 ft.; set csg.; standing.

CHAPMAN POOL—WILLIAMSON COUNTY

Westbrook Oil Corp.'s No. 8-A Lawrence, 150 ft. from S and E lines of tract in S. Miller Sur.	Location.

FETTUS POOL—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr County	T. D. 3,930 ft.; standing.
Geo. N. Moore et al's No. 3 Freeland, in John Pace Sur., 1,000 ft. from S line, 600 ft. from E line of survey	T. D. 4,297 ft.; standing.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur.	T. D. 4,530 ft.; drlg.
T. B. Slick estate's No. 1 Ray, in Kerr Sur., 210 ft. W of NE cor. of John W. Williamson Sur. and 330 ft. N of N line of same survey (location changed)	Moving in.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright	T. D. 5,400 ft.; standing.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim	T. D. 4,810 ft.; straightreaming.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagaris	Building derrick.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell	T. D. 2,985 ft.; drlg.
Neal-Milton and Kepley Pet. Co.'s No. 1 J. N. Roark, 200 ft. to S line, 200 ft. to E line of 106-ac. tract	Drlg. 3,490 ft.
Saxet Oil Co.'s No. 1 McCampbell, 600 ft. from N and W lines of tract	Rigging up.

LAREDO DISTRICT
KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 144	T. D. 7,725 ft.; abnd.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 Benavides, 660 ft. from S line, 150 ft. from E line of Sur. 633	Location.

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Duval Oil Corp.'s No. 4 Bishop Duval Land Co., 1,650 ft. from W line, 330 ft. from S line of N half of Sur. 135	T. D. 600 ft.; drlg.
Magnolia Petroleum Co.'s No. 4 Wilson, 1,520 ft. from W line, 800 ft. from N line of Sur. No. 134.	Location.

KILLAM-CUELLAR FIELD—ZAPATA COUNTY

O. W. Killam's No. 44-B Cuellar, in Sur. 277	T. D. 1,400 ft.; drlg.

CAMP POOL—GUADALUPE COUNTY

Humble Oil & Refining Co.'s No. 1-C Sue Denman, 450 ft. from S line, 150 ft. from W line of lease offsetting Camp's discovery well	Rigging up.

COLE POOL—WEBB COUNTY

French Oil Corp.'s No. 4 R. Benavides, 1,945 ft. from N line, 150 ft. from W line of Sur. 659	Rigging up.
Magnolia Petroleum Co.'s No. 5 A. Benavides, 1,945 ft. from N line, 150 ft. from E line of Sur. 660	Rigging up.
O. W. Killam's No. 20 Bruni, 1,420 ft. from NE line, 175 ft. from NW line of Sec. 9 of Arispe grant	Location.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Tom Draper's No. 1 Trueblood, 250 ft. from N line, 1,440 ft. from W line of tract, John Neill Sur.	T. D. 650 ft.; shut down.
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1.	T. D. 2,582 ft.; drlg.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan	T. D. 1,410 ft.; shut down.
Theo. Hicks' No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm in Thomas M. Fowler Sur. No. 27 in extreme south point of county	T. D. 718 ft.; drlg.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155.	T. D. 1,100 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 574 ft.; shut down.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,260 ft. to N line, Sur. No. 94	T. D. 712 ft.; shut down.

BASTROP COUNTY

W. A. Allen's No. 1 Birmingham, James Stewart Sur.	T. D. 1,300 ft.; drlg.
Smith & Barnes' No. 1 Marberger, 50 ft. W line, 1,360 ft. S line of tract in King & Millett Sur.	T. D. 570 ft.; temporarily abnd.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm in Thos. Christian Sur.	Derrick.

BELL COUNTY

Fields & Lange's No. 1 C. S. White, 150 ft. from S line, 300 ft. to E line of farm in Nancy Roberts Sur.	T. D. 297 ft.; drlg.
Hartman Drilling Co.'s No. 1 E. L. Deaver, 600 ft. to N and 300 ft. to E line of farm, in Nancy Roberts Sur.	T. D. 482 ft.; shut down.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur.	Spudded in.
James Scroggins' No. 2 Warrick, Ingram Sur.	T. D. 1,425 ft.; fishing.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore	T. D. 1,870 ft.; drlg.
Hughes et al's No. 1 Martin, 1,000 ft. S of Simms Oil Co.'s No. 1 Holsmark in John Lyford Sur.	Moving in rig.
Hughes et al's No. 1 Martin, 300 yards S of Simms' No. 1 Holsmark	Moving in rig.
Humble Oil & Ref. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tract in Garrett Roache Sur., S part of county	Building derrick.
Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur.	T. D. 3,544 ft.; standing.

BEXAR COUNTY

J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line of C. Logan Sur.	T. D. 530 ft.; shut down.
Ingersoll-Miller's No. 2 Carruth, 3,900 ft. S, 2,500 ft. W of NE cor. of tract in Francisco Bolen Sur.	T. D. 480 ft.; standing.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio	T. D. 385 ft.; standing.
Tri-State Oil Co.'s No. 1 E. B. Carruth, 2,500 ft. from S line, 2,560 ft. from E line of tract in F. Bolen Sur.	T. D. 770 ft.; set 10-in. csg.

CALDWELL COUNTY

Ralph R. Lewis' No. 1 Keith McGee, 600 ft. from E and S lines of tract in J. Pinchback Sur.	T. D. 50 ft.; laying water line.
Mills et al's No. 1 McMahon, 375 ft. SW line, 75 ft. SE line of tract, J. Pinchback Sur.	T. D. 2,502 ft.; standing.

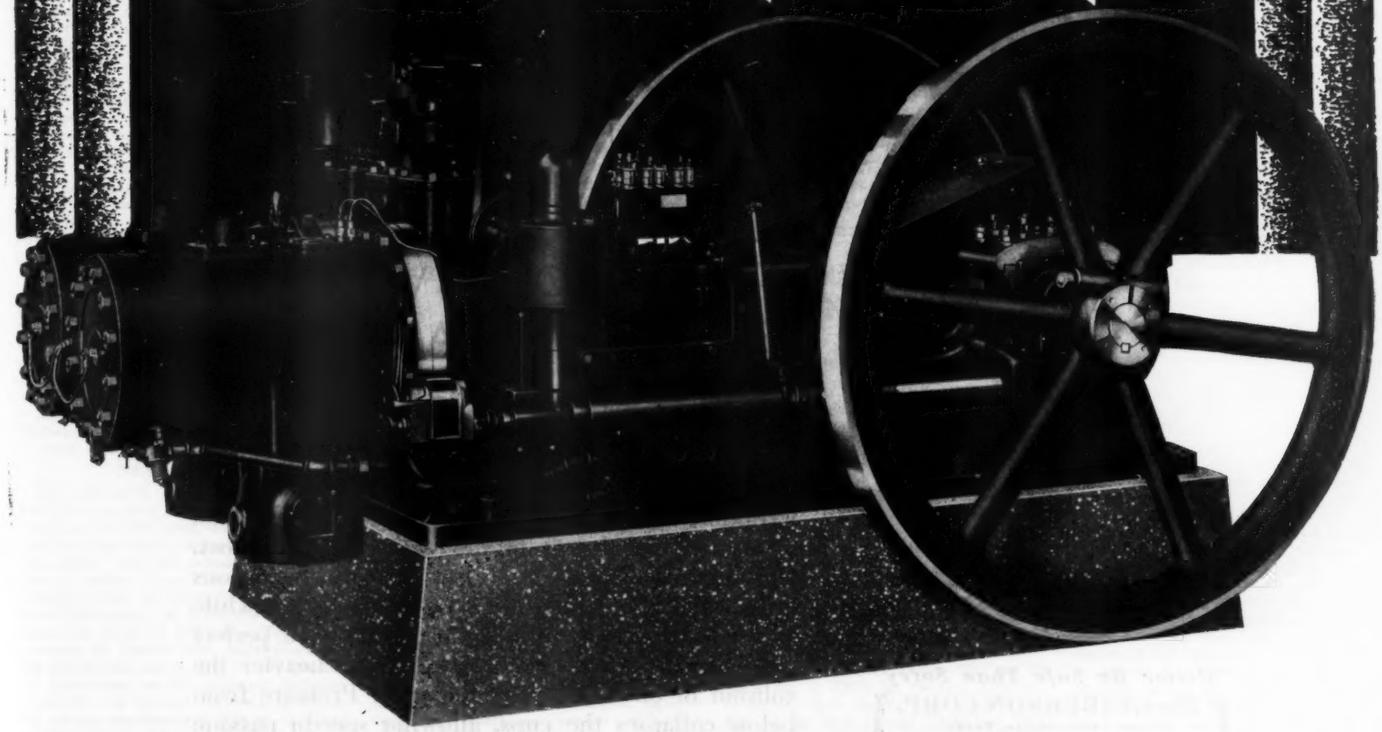
COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur.	T. D. 722 ft.; set 8¼-in. csg. at 704 ft.

(Continued on Page 66)

Superior

70 H.P. TWIN CYLINDER TWO CYCLE GAS ENGINE



FOR BAND WHEEL OR BEAM PUMPING OF WELLS 4500 TO 8000 FEET DEEP

ACCELERATION FROM 150 TO 400 R. P. M. IN 4 SECONDS

THE NATIONAL SUPPLY COMPANIES

FLEXIBLE THINGS ENDURE

"WALK SOFTLY AND GO FAR" SAYS THE HEATHEN CHINEE

Fully patented

FLEXIBLE CUPS ON THE GUIBERSON SWAB ARE TEACHING THE SAME LESSON

In other words, it's the swab cup with the gentle touch that lasts longest and lifts the most oil.

Flexible cups on the Guiberson Swab "walk softly" over rough places in the casing, giving way to wrinkles, dents and protrusions, holding their load of oil and carrying it to the surface without loss. Guide wires steer the cup rims over the dangerous areas.. Intensive cup wear is thereby avoided, while at the same time the cup rims maintain a perfect seal with the walls of the casing. The heavier the column of oil, the tighter the seal. Pressure from below collapses the cups, allowing speedy passage into the hole. The Guiberson Swab is doing most of the world's swabbing today.

"Better Be Safe Than Sorry"

The GUIBERSON CORP.
Box 1106, Dallas, Texas
California Branch: 1304 Security Title Ins. Bldg., Los Angeles,
504 Wright Bldg., Tulsa — First and Locust Sts. Newark, O.

GUIBERSON
BETTER BE SAFE THAN SORRY

Higher Price Demanded for Hobbs Crude

Governor Seligman Contending for 52 Cents and Intimates He May Call a Special Session of the Legislature

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Sept. 14.—The Hobbs Pool potential production was raised to 1,176,234 bbls. daily when the Midwest Refining Co.'s No. 34 Turner, completed last January, was put on production. The well was given a potential of 19,400 bbls. daily. The governor of New Mexico intimates that more drastic action, possibly a special session of the legislature, is in the offing in his effort to get higher prices for Hobbs crude. The Western Drilling Co.'s No. 1 State, northwest of Lea, was abandoned. One new location on the Rattlesnake Dome was made by the Continental Oil Co.

The Berthoud Pool in Larimer County, Colorado, reported a flowing well in the Raddatz Corp.'s No. 1 State, only 125 feet from a test drilled in 1925 and abandoned. Reiter-Foster Oil Co.'s No. 1 Ida Johnson, on the Greasewood Dome, increased its flow when tubing was run. The discovery well came back to better than normal when deepened a few feet. Two wells in northeastern Colorado are nearing completion. One new location was made.

Two gas wells with an aggregate flow of 24,250,000 feet a day were completed in the Cut Bank Field in Montana and three locations were reported. Two gas wells were completed and two new operations were started in the Kevin-Sunburst Field and one well was abandoned in the Bear's Den district.

Two completions on the Garland Dome in Wyoming adds about 2,500 bbls. of new production and 55,000,000 feet of gas to the field. The Ohio Oil Co.'s Neiber Dome test is reported ready for completion. The Hamilton Dome Field is being opened up after having been shut in for several months.

A big deal for gas acreage in the Weiser district in Idaho, by the Ohio Oil Co. was reported.

NEW MEXICO

The allowable outlet for the Hobbs Pool for the first half of September was placed at 36,968 bbls. daily by the executive committee, a reduction of only 79 bbls. daily from the schedule which has been in effect since July 16. The new schedule gives the potential for the field as of September 1 at 1,176,234 bbls. daily from 144 wells on 128 units. This is an increase of 19,400 bbls. daily from the old potentials and is due to the placing on production of the Midwest Refining Co.'s No. 29 Turner, in Section 34-18-38, on the southeastern side of the field in the Hobbs townsite. This well was completed last January, but had been shut in. It has been given a new potential of 19,400 bbls. daily and will be permitted to produce 528 bbls. The addition of this well to the producing list also increases the 40-acre units on production by one. Total pipe line runs for the field in August were 1,134,383 bbls., 14,074 bbls. short of the total allowable of 1,148,457 bbls. Total runs from the field since proration went into effect on July 10, 1930, to the end of August were 13,973,791 bbls. The opening up of Midwest's No. 29 Turner may result in the drilling of some wells in that area. The Midwest has the leases on offset locations on all four sides, but between this well and the nearest producers on the west the Continental Oil Co. and the Gypsy Oil Co. have the east half of Section 33, upon which no wells have been drilled, and the Skelly, Shell and Landreth companies have some acreage half a mile to the north.

The few edge wells on the western and southwestern sides of the field which were reported showing some water are said to have almost entirely overcome the intrusion by producing the allowable outlet for the wells in daily periods instead of letting them flow in one day the quantity allowed for the entire week. The appearance of the sulphur water is not considered serious and is being handled in a satisfactory manner.

Price of Hobbs Crude in Controversy

Following the receipt of telegrams and letters from members of the Hobbs Pool Executive Committee urging a watchful waiting policy in regard to the price for Hobbs crude until the East Texas situation is cleared up, Governor Arthur Seligman again communicated with Chairman E. G. Allen, in Dallas, Tex. He has taken the position that the present posted price of 35 cents for Hobbs crude is out of line with posted prices for oil of like gravity in the Mid-Continent area and is contending for a price of 52 cents. Chairman Allen previously had sent a comparative schedule of prices which, he contended, showed that Hobbs was not being discriminated against.

The governor in his reply talked of drastic action being resorted to unless Hobbs crude was increased to the same level as that prevailing in the Mid-Continent territory. He said he had in mind, among other things, the calling of a special session of the legislature to enact such laws as are necessary to bring about better prices, and added: "It is my judgment that you are subject to prosecution in our state courts under our anti-trust laws, as I do not recognize that the proration agreement under which you are operating to evade prosecution is a valid agreement." This reference evidently refers to the agreement entered into between the operators and the State of New Mexico, which was signed on behalf of the latter by James F. Hinkle, commissioner of the land office. The governor took the position at the time that Commissioner Hinkle was not the qualified agent of the state government to sign the agreement, with which contention the commissioner took issue.

Lea County

Drilling operations are temporarily at a standstill in Lea County following the plugging and abandoning of the Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32, northwest of the Lea Pool, which was drilled to a total depth of 4,005 feet. At that depth it had 3,200 feet of sulphur water in the hole. The first sulphur water was at 2,745 feet. The elevation of this well is 3,460 feet. It topped the salt at 830 feet and the brown lime at approximately 2,360 feet. The only other operation is Culberson & Conrad's No. 1 State, C NE, Section 22-18-34, Caprock area, which is shut down at 3,580 feet for the 6⅝-inch casing to shut off water encountered at 3,360-75 feet.

Eddy County

R. D. Compton's No. 1 Brainard, SE SE, Section 5-18-27, Artesia area, is shut down at 1,217 feet after landing the 8¼-inch at 1,040 feet and the 6⅝-inch on bottom. It will remain idle unless a lease is issued by the Department of the Interior under a prospecting permit. Flynn, Welch & Yates' No. 60 State, SW cor., Section 5-19-28, is drilling at 1,700 feet in anhydrite and lime.

DeBaca County

The Landowners Oil Co.'s No. 1 McAdoo, SW cor. NE, Section 16-1n-27, Buffalo Creek, is shut down at 4,530 feet for drilling line. The new interests which recently took over this well and 18,000 acres, propose to carry the test to 5,000 feet, if necessary.

Chaves County

Warman Oil Trust's No. 1 Evans, N half, Section 15-14-25, Blackdom area, is drilling at 280 feet in red rock with the 10-inch at 275 feet.

Guadalupe County

The New Mexico Producing & Refining Co., Ltd.'s No. 1 McMillan, SW cor., Section 24-5s-16, is drilling at 2,075 feet in brakish sand.

San Juan County

The Continental Oil Co.'s No. 24, SW NW SW, Section 1-29-19, Rattlesnake Dome, is drilling below 4,924 feet in shale and shells after setting the 9⅝-inch at 4,745 feet. It still has more than 1,500 feet to go to reach the objective pay in the Pennsylvanian which was found in the discovery well one-fourth of a mile away. Rig is being moved in for No. 25, Section 2-29-19. The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, is shut down at 3,615 feet in or near the top of the Mesa Verde. At this depth it had a show of oil and the Bureau of Mines advised that the hole be cased before drilling deeper. This is the pioneer well in this district to reach that formation.

COLORADO

Larimer County

The Berthoud Pool in Larimer County, a front range structure 30 miles south of the Wellington-Fort Bend Field and north of the old Boulder Field, shared interest this week with the Weld-Morgan Counties operation when the Raddatz Corp.'s No. 1 State, SW cor. NW, Section 16-4n-69, came in as a flowing well in the Muddy sand.

The Berthoud structure was tested by the Midwest Refining Co. in 1925, following the discovery of oil at Wellington, in its No. 1 State, SW cor. NW, Section 16-4n-69, only 125 feet northeast of the Raddatz well. The Midwest test found the Muddy at 3,750-70 feet and at the time was reported to have showed for 10 bbls. of oil and 3,000,000 feet of gas. It was carried on down to the Morrison at 4,031 feet and abandoned. The action of the Midwest in pulling out was somewhat of a surprise as reports were current at the time that its test was a better well than generally supposed. However, it was explained afterwards that the drilling obligations on leases were too numerous to make it profitable for the quantity of oil found.

There was no further development until 1926, when the Five Square Oil Co. obtained leases and drilled a test in its No. 1 Fagin, NE SE NE, Section 17-4n-69, which was drilled only to the Nio-Benton sand at 3,273-3,312 feet and completed as a 1,000,000-foot gas well. This company next drilled its No. 1-A State, SW cor., Section 16-4-69, half a mile south of the Midwest test, and was a small well in the Muddy at a total depth of 3,781 feet. This well averaged 18 bbls. daily, natural flow through the 6¼-inch casing for about a year, though it was not in good condition and not a satisfactory test.

Last year, the Standard Oil Co. of

(Continued on Page 74)

PROGRESS OF CANADIAN DRILLING; WANT REGULATIONS MODIFIED

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Sept. 12.—A meeting of the Oil and Gas Association of Alberta recently decided to make representations to the Alberta government in regard to further modification of the new oil and gas regulations. The federal income tax on oil companies was also discussed, a special report presented by B. F. Hake and D. Austin Lane indicating that in many cases the tax had been levied against temporary surpluses instead of actual profits, with the result that it had actually been paid out of capital. The matter will be taken up with the department of national revenue.

Drilling Operations

In South Turner Valley, Southern Lowery's No. 3, LSD 4, Section 9-19-2w5, has resumed work after cementing at 5,178 feet, and is reported drilling at 5,333 feet. Farther south, Sterling Pacific Oil Co.'s No. 2, LSD 10, Section 33-18-2w5, is drilling at 3,887 feet.

In southern Alberta, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, on the Lethbridge structure, is reported drilling near the base of the Bentons at 3,610 feet.

In the Mercury area, South Turner Valley, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is drilling 10-inch hole in the Kootenay formation below 4,100 feet and should get the lime contact before the end of this month. The test offsets Mercury Oils' No. 1, a big producer, the wells logging closely. Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, is drilling at 4,655 feet and Miracle's No. 3, LSD 11, Section 4-19-2w5, at 3,947 feet.

In the far south, Mar-Jon-Freehold's No. 1, LSD 9, Section 28-18-2w5, is drilling below 1,520 feet. Union Drilling Co. of Calgary is handling the contract. William Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is drilling below 2,150 feet.

In Central Turner Valley, McLeod Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, is making hole slowly in a hard formation of the lime around 5,100 feet. Considerable crude naphtha is brought up at intervals by the bailer, and it is planned to finish around 5,200 feet.

North Turner Valley

In North Turner Valley, Model Oils' No. 1, LSD 8, Section 22-20-3w5, shows a total production for the seven months to July 31 of 30,262 bbls. of crude oil and discolored naphtha and 6,068 bbls. of crude naphtha. The July production was 5,064 bbls., compared with 4,956 bbls. in June, and the recovery is from a comparatively small flow of wet gas.

United Oils' No. 4, LSD 2, Section 24-20-3w5, is standing at 6,115 feet, approximately 221 feet in the lime, with some wet gas.

Commonwealth Gets Show

In the Milk River area, southern Alberta, Commonwealth Petroleums' No. 1,

(Continued on Page 72)

California Fears Another Price War

Refiners Making Determined Effort to Stabilize Market. Cut Rate Gasoline Again Becomes Problem. New Gas Zone Found

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Sept. 12.—Conditions on the Pacific Coast were somewhat less favorable during the past week but the constructive element is making a determined effort to prevent a general breakdown in prices. There has been a decided weakening in gasoline during the past week, and, while major refiners are still adhering to posted tank wagon prices, it is problematical how long the price structure will be maintained. Considerable gasoline is being retailed in southern California at prices substantially below those posted by major companies and the larger progressive independent refiners. The situation is further aggravated by the fact that gasoline refined by smaller refiners and tea kettle operators is being retailed even below tank wagon prices of major refiners and in many cases there is a spread of more than 5 cents per gallon between the 16-cent retail price posted by major marketers and the 10½ cents posted by a number of independent refiners.

The seriousness of the situation is obvious and it is not at all improbable another price war will be precipitated despite the concerted effort to stabilize quotations. It is a foregone conclusion major refiners will sooner or later meet this competition although the threatening gasoline war can still be averted by the restoration of normal prices, which at present is 16 cents per gallon for gasoline refined by major companies and 14 cents per gallon for that of independent refiners. Both quotations, of course, include the state gasoline tax of 3 cents. Several of the larger companies have been considering the advisability of installing a third pump to meet competitive prices but are somewhat reluctant to adopt this policy because of the installation involved and might therefore find it more advantageous to institute a general downward revision and maintain present quality if a general breakdown occurs. The disparity in retail gasoline prices is particularly analogous to conditions existing just previous to the disastrous price war precipitated last March and continued through the early part of June.

Effect on Crude

The most disconcerting feature in connection with the possible gasoline war is the fact that if a general breakdown occurs in the refined oil market, crude oil prices will likewise be reduced. This is particularly unfortunate because of the conscientious efforts of most producers to effect curtailment but at the same time crude oil is not worth any more than the value of refined oil secured therefrom. It indicates that a small minority can disrupt conditions in both the producing and marketing end of the business. Just as a chain is no stronger than its weakest link, the effectiveness of crude oil curtailment and stabilization of refined oil prices depends upon the importance of the destructive minority. Crude oil production has been hovering around the 500,000-bbl. mark for the past few weeks, and, while the State's output has never been within striking distance of the allowable daily maximum of 487,500 bbls., the production situation is much better than it was a month or so ago. Despite this improvement there is a considerable quantity of uncurtailed production which is being sold substantially below the posted price of major companies for crude oil. This is especially true at Playa Del Rey where several operators are selling 100 per cent of production at 50 cents per barrel, while others are selling 50 per cent curtailed production on the basis of 68 cents per barrel. This practice temporarily gives the irreconcilable producer a larger income but at the same time weakens the general price structure because it permits the refiner to cut gasoline prices due to lower cost of raw material. This vicious cycle ultimately results in lower prices for crude oil with the result that the advantage enjoyed by uncurtailed production is only temporary.

New Gas Zone

The discovery of a new commercially productive gas zone in the Buttonwillow gas field of Kern County overshadowed all other development work in California during the week. The discovery of this new zone is especially timely as it assures California consumers an adequate supply of natural gas and paves the way for more stringent enforcement of the California gas conservation law in the various oil fields throughout the State. Enforcement of the gas conservation law in the Kettleman Hills Field of Kings County has resulted in a substantial reduction in the amount heretofore blown into the air. The probability of a temporary gas shortage resulting from enforcement of the gas conservation law at Kettleman Hills has been definitely averted as the Buttonwillow Field is capable of producing any possible deficit which might result from curtailment work in any of the oil fields.

The new deep zone discovery well at Buttonwillow is Milham Exploration Co.'s No. 1 Page, which concern, incidentally, discovered the Buttonwillow gas field and finished the first commercial producer in the north dome of Kettleman Hills. No. 1 Page, the Milham's latest completion in the Buttonwillow Field, was brought in flowing 10,000,000 feet of dry natural gas per day from 3,221 feet. It is shut in but can be opened within a short time. The production of gas was consistent during the production test and will undoubtedly show a maximum recovery per acre as the casing pressure at the present time is 1,040 pounds.

The Milham Exploration Co. has proved the existence of three highly productive gas zones in the Buttonwillow Field up to the present. No. 1 Page, which opened up the third productive horizon at Buttonwillow early this week, is the eighth gas well to be finished in that field. These eight wells have an aggregate potential daily production of approximately 75,000,000 feet but this figure could be greatly increased by additional development. The natural gas transmission line of the Pacific Gas & Electric Co. was predicated on the production possibilities of the Buttonwillow gas field. Subsequent developments, however, changed the aspect of the situation with the result that the Pacific Gas & Electric Co. is moving Kettleman Hills gas to the San Francisco Bay region for commercial consumption instead of utilizing natural gas from Buttonwillow. If, however, the supply of natural gas from Kettleman Hills is insufficient to meet normal requirements in the San Francisco Bay region due to enforcement of the gas conservation law in the north dome, the Milham's gas wells at Buttonwillow will be opened up. In conformity with the gas conservation law, natural gas from oil fields has a priority right over gas fields which do not produce oil.

Other Gas Fields

There are several gas fields in California capable of immediate production and a number of other potentially productive areas which will undoubtedly be called upon at some future date. In addition to these gas fields, several oil fields have dry gas zones capable of producing a limited quantity of natural fuel. Buttonwillow is the largest gas field discovered in California up to the present. The General Petroleum has opened up a natural gas field in the Goleta area of Santa Barbara County and this district may also become an important factor due to depletion of natural gas reserves in Los Angeles Basin. The General Petroleum has completed two gas wells on the More Ranch at Goleta and is drilling a third well which is being carried down as a deep test to determine the possibility of developing oil production below the present known gas horizon. No. 2 More was placed on production early in the week and it is likely that No. 1 More, the discovery well, will also be placed on production during the winter. The Southern California Gas Co. is picking up a little less than 10,000,000 feet of natural gas per day from No. 2 More and this gas is being delivered to commercial consumers in Los Angeles Basin. No. 1 More showed a potentiality of 30,000,000 feet per day upon completion a year or so ago and tests indicate that No. 2 is capable of producing 25,000,000 feet per day. No. 3 More, the well now being deepened in search of oil production, is good for another 35,000,000 feet daily in the event that commercial production of crude oil is not obtained. The Southern California Gas Co. laid a transmission line into the More Ranch area last year preparatory to utilizing natural gas from this field in the event that oil gas became insufficient to meet normal requirements. The Southern California Gas Co., which is at present purchasing natural gas from the Ventura Avenue Field, had expected a consistent production of natural gas from the Elwood Field but gas depletion and the initiation of repressuring operations removed this field as a possible source of gas production.

Gasoline to East

The next few weeks will see further tangible evidence of the possibility that California gasoline may become a factor on the Atlantic Seaboard. Three Sun Oil Co. tankers have recently been put back into active service and this trio is now en route to Los Angeles harbor to load gasoline for Philadelphia. These three tankers are the Atlantic Sun, the Eastern Sun and the Western Sun, all due in Los Angeles harbor within a few days. The tanker Sun of the same company is expected next week and the Northern Sun, another tanker of the Sun Oil Co., will arrive within 10 days. The Richfield Oil Co.'s tanker Agwiworld has just left for New York with 81,000 bbls. of gasoline and a sister ship, the Huguenot, comes out of seclusion to lift a similar cargo for the Atlantic Coast on September 15. The tanker Ohio is due in Los Angeles harbor from the Atlantic Coast on September 14 to lift a cargo of gasoline for the Cities Service Co. and other tankers of the same fleet are expected to arrive at frequent intervals in the future, provided of course that California refiners can be induced to make additional commitments.

The resumption of intercoastal shipments of gasoline and natural gasoline should have a stabilizing influence in California where marketers are making a determined effort to stabilize refined oil prices. There is little profit, however, for California refiners because on the basis of 5 cents per gallon c.i.f. on the Atlantic Seaboard, the netback to California refiners is only approximately 3½ cents per gallon. As a matter of fact, sales of gasoline at these figures represent an actual financial loss as a substantial portion of gasoline sold for Atlantic shipment was accumulated on a higher crude oil price schedule.

Kettleman Hills

Operators in the north dome of Kettleman Hills were given a rather sudden shock early in the week when Shell Oil Co.'s No. 1 Dixon began making water and emulsion and showing other evidence of edgewater encroachment. The cut in this well went as high as 16 per cent but the well subsequently cleaned up to 2 per cent. It is problematical what caused this sudden contamination and while field men describe it as a little slug of stray water, petroleum engineers are of the opinion that the appearance of mud and emulsion is of more than passing interest. As a matter of fact, some are inclined to believe this is a preliminary indication of edgewater encroachment which, however, they expect to be rather slow due to the tremendous gas pressure which should have a tendency to retard the infiltration of forma-

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	81,950
Diesel and gas oil	88,557	12,651	.....	.....	1,183,059	2,450,761
Gasoline	261,193	35,885	332,844	47,549	9,606,772	13,792,133
Kerosene	.....	.....	.....	.....	187,934	.....
Coastwise—						
Crude oil	521,041	74,434	656,722	93,817	15,721,488	10,645,309
Fuel oil	341,118	48,731	100,148	14,307	5,808,535	11,783,662
Diesel and gas oil	43,320	6,189	61,106	8,729	1,105,594	1,180,938
Gasoline	341,107	48,730	452,764	64,681	9,325,003	8,924,602
Kerosene	9,772	1,396	.....	.....	220,067	134,514
Naphtha distillate	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	250,548	35,807	153,337	21,905	5,287,687	4,780,500
Fuel oil	246,955	35,136	272,791	38,970	9,439,879	12,533,774
Diesel and gas oil	58,908	8,415	73,183	10,455	2,586,722	3,161,978
Gasoline	108,503	15,500	48,568	6,938	6,251,162	11,384,391
Kerosene	.....	.....	55,116	7,874	1,124,714	2,814,796
Lubricants	.....	.....	.....	.....	36,353	14,680

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	279,083
Gasoline	.....	.....	.....	.....	591,439	931,097
Lubricants	.....	.....	.....	.....	27,806	24,774
Coastwise—						
Fuel oil	48,116	6,874	.....	.....	2,648,015	2,337,108
Diesel and gas oil	.....	.....	60,150	8,597	339,850	190,516
Gasoline	144,287	20,612	343,593	49,085	3,101,141	2,796,104
Kerosene	10,348	1,478	.....	.....	234,488	158,499
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	.....	.....	.....	.....	107,736	3,075
Fuel oil	72,140	10,306	28,077	4,011	1,132,131	662,135
Diesel and gas oil	92,234	13,176	.....	.....	386,942	398,329
Gasoline	.....	.....	92,576	13,367	2,962,942	2,783,272
Kerosene	.....	.....	14,380	2,054	562,568	508,528
Lubricants	.....	.....	.....	.....	30,100	19,849

tion water. The possible existence of adjacent edgewater is not of any special consequence as far as the field itself is concerned as edgewater is always encountered around the edge of every field. Shell's No. 1 Dixon is located rather well out on the north flank of the north dome and would normally be expected to show edgewater sooner or later. As a matter of fact, many petroleum engineers were rather surprised at the substantial production shown by No. 1 Dixon.

Defining Kettleman Dome

The Kettleman North Dome Association has inaugurated a drilling program which will have for its objective the definition of the outer limits of production in the north dome. The association is grading sites for two new wells, one located in Section 30-21-17 and the other in Section 34-22-18. A third well will be drilled as an offset to the Petroleum Securities Felix property, located in Section 35-21-17. The Kettleman North Dome Association has been building up an underage during the past week and will continue to limit production as it has two new wells scheduled for completion during October. By keeping production substantially below its allowable during September, the association will be able to finish two new wells without upsetting its aggregate pegged allowable production during the remainder of the year. The North American Consolidated successfully cemented 8,485 feet of 8⅝-inch casing in No. 1 Blauvelt, thereby establishing a new record for pipe of this diameter. A little difficulty was experienced in obtaining circulation when the casing was run in last week but this trouble was subsequently eliminated and the pipe cemented with 600 sacks.

Unless something unforeseen develops, the Petroleum Securities should be in a position to determine the potentiality of the middle dome of Kettleman Hills within 30 days as its test well in this area is approaching the 8,000-foot level. This well, one of the most important under way in California, has definitely cored the Temblor and while company officials are hopeful of developing commercial production they are nevertheless maintaining a conservative attitude. Core samples reveal the existence of a well-saturated oil sand which reacts favorably to tetrachloride tests. Unless bottom water is encountered or mechanical trouble develops, No. 1 Burbank should result in commercial production. If the Temblor is found productive in No. 1 Burbank a new separate and distinct field will have been discovered. This will make two productive areas on the major Kettleman Hills anticline, the north dome having been proved more than a year ago.

The Belridge Oil Co. finished a new well in the North Belridge Field of Kern County early in the week but this project, No. 48 in Section 35-27-20, was not given a production test due to the desire to keep within the allowable daily production established for this field by the operators general committee on statewide curtailment. This potential producer was bottomed at 5,428 feet and finished with a 6⅝-inch liner carrying 387 feet of perforated. No. 64 in Section 27-27-20, the Belridge Oil Co.'s deep test in the North Belridge Field, was rotating ahead a few days ago at 5,925 feet. This is the deepest well drilled in this field and will be carried on down for a deep conclusive test. In the Lost Hills Field of Kern County, the General Petroleum is rotating in its well No. 1,301 at 4,400 feet but has not picked up the top of the Temblor. No. 1 Berry of the General Petroleum, an important test being drilled in the South Belridge Field of Kern County, is still in the brown shale at 6,375 feet and has consequently taken on somewhat of a dubious outlook. It still has a chance, however, although the top of the Temblor was expected to be encountered above the 5,000-foot level.

Fruitvale

The Sea Hawk Petroleum Co. successfully completed its well No. 1-A in the Fruitvale Field of Kern County during the early part of the current week and this new well, located in Section 23-29-27, was brought in under a natural flow doing 410 bbls. of relatively clean 22.3 gravity oil per day from 3,760 feet. The Western Gulf, discoverer of the Fruitvale Field, has staked location for an offset and rig construction is expected to get under way within the next few days. The Range Oil Co., located between the Kern River and Round Mountain Fields, has cored a rather promising looking oil sand in Section 36-28-28 and a string of 8⅝-inch will be landed and cemented preparatory to an early production test. The Golden Bear Oil Co. has started operation of its new 6-inch pipe line extending from the Round Mountain Field to Kern River, and this line will facilitate tank car loadings. The California Oil Producers picked up the top of the Temblor in its well No. 2 in the McKittrick Field of Kern County at 5,630 feet but does not seem to show much promise at 5,800 feet. The addition of a little more hole may change the situation and this well will consequently bear close watching. The Shell Oil Co. suspended production activities on No. 1 Porter Day, the discovery well in the Weed Patch, or Mountain View Field of Kern County, and has consequently diverted attention from this district. Not a single string of tools is in operation in the Weed Patch area and developments indicate that future work will be rather limited in extent.

Santa Barbara County

The Barnsdall and Rio Grande, which are jointly developing acreage in the Elwood Field of Santa Barbara County, spudded in a new well on the Bell Luton lease a few days ago and preparations are under way to start No. 20 Bell Luton, another well, some time in the near future. This work does not indicate a resumption of competitive drilling but is being done in accordance with lease requirements. No. 1 Bishop Evans, a deep test at 6,730 feet, is expected to be given an early production test as 856 feet of 5-inch liner was landed a few days ago. This well is outside the present limits of production and will consequently be watched with interest. In the Capitan Field of Santa Barbara County the General Petroleum has suspended production activities on No. 10 Erburu, a recent completion, and will temporarily discontinue further drilling in this field.

In the Rincon Field of Ventura County, the General Petroleum is drilling a deep test on the N. C. Needham tideland drilling permit, and this well, located out in the open ocean beyond the tide line, will be carried down for a deep conclusive test. The Pacific Western Oil Co. has reached a depth of 7,180 feet in No. 7 Orton, a projected deep test in the Ventura Avenue Field, and, while this well was originally started down in an effort to pick up the new 57 zone recently discovered by the Associated Oil Co., this deep exploration work may possibly be held off until a later date. The Shell Oil Co. has also decided to determine the potentiality of the new 57 zone and preliminary work is already under way to redrill and deepen No. 68 Taylor, which is down 6,002 feet.

The Chanslor-Canfield Midway Oil Co. has not yet succeeded in developing commercial production in No. 2-A Hobson, a wildcat located approximately midway between the Rincon and Ventura Avenue Fields, and the outlook is not at all encouraging. The Continental Oil Co. is making good footage in No. 1 Grubb in this general vicinity, as the bit was rotating ahead a few days ago at 6,525 feet. The Continental has cored approximately 50 feet of oil sand in No. 1 Grubb and tentative plans call for a production test to be made of this showing before drilling ahead. The Ohio Oil Co.'s No. 1 Oakley, on acreage adjoining the More Ranch gas field of the General Petroleum in the Goleta district of Santa Barbara County, is coring much lower structurally than completions of the General Petroleum on the More Ranch and has consequently taken on a somewhat dubious aspect.

The Superior Oil Co. has staked location for a new wildcat on the Irvine property in the Newport district of Los Angeles Basin and rig construction is expected during the coming week. The Superior's wildcat in Section 27-6-10 is about 2 miles south of a deep test recently abandoned by the Standard Oil Co. as a dry hole. The Superior will test out a small limited structure which, while it looks rather promising, is not considered any too hot in view of the many unsuccessful attempts to develop substantial production in this area. During the past week the Nuoil Co. finished No. 2 Banning in the heavy oil zone at Newport and this new well is pumping 50 bbls. of relatively clean 15.8 gravity oil per day from 1,951 feet, the hole having been finished with a 6⅝-inch perforated liner.

The Meridian Oil Co., which recently resumed drilling operations in its wildcat located about midway between Lancaster and Mojave on the southern rim of Antelope Valley, is making preparations to test out an oil sand topped at approximately 3,782 feet.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	6,510	suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-16	6,715	suspended
Farmer, Z. J., No. 1 Hermosa, Los Angeles Co.	6- 4-14	....	location
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,151	testing
Baxter Pet., No. 1 Hermosa, Los Angeles Co.	5- 4-14	....	material
Thorpe Pet., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	3,840	abandoming
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Smith, J. O., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	rig	suspended
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	2,005	sd. sh. drilling
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	rig	suspended
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	4,568	suspended
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-12	3,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	2,015	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	502	br. sh. drilling
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,235	hd. sd. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	suspended
Simi Oil Co., No. 1 Calabasas, Los Angeles Co.	18- 1-17	362	sd. drilling
West Coast Waste Oil, No. 1 Van Nuys, Los Angeles Co.	14- 1-16	rig	suspended
Superior Oil Co., No. 1 Newport, Orange Co.	27- 6-10	....	location
Ajax Pet., No. 1 Newport, Orange Co.	31- 6-10	4,910	cleaning out
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Alberta Oil Co., No. 1 Elsinor, Riverside Co.	35- 2- 2	3,435	suspended
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	redrilling
Western Gulf, No. 1 Mahala, San Bernardino Co.	12- 3- 3	280	core hole
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	600	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	cleaning out
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	5,120	suspended
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18- 1	1,570	fishing
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	5,250	suspended
Oklahoma Oil Corp., No. 1 Palma, San Diego Co.	25-11- 8	510	sd. sh. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-35	7,275	br. sh. drilling
Midwest Oil Co., No 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,450	suspended
Zaca Oil Co., No. 1 Los Olivas, Santa Barbara Co.	20- 7-31	rig	suspended
Ohio Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	3,110	sd. sh. drilling
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	10,000,000ft.gas
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	6,810	Sespe form.
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,099	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,134	suspended
Strickland & Tippet, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,500	suspended
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C.C.M.O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	10,030	plug 7,825 ft.
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	6,550	br. sh. drilling
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	718	sd. sh. drilling
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	2,591	suspended
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	13- 4-21	3,410	fishing
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	4,910	cleaning out
Mex Cal Oil Co., No. 1 Conejo, Ventura Co.	12- 1-20	240	suspended
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	1,730	sd. sh. drilling
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 7 Buttonwillow, Kern Co.	6-28-23	3,200	10,000,000ft.gas
Calif. Oil Producers, No. 2 McKittrick, Kern Co.	30-30-22	5,820	br. sh. drilling
Purman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	rig	rigging up
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,367	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	6,375	br. sh. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	suspended
Rio Cal Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	3,580	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	1,990	suspended
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	6,150	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,600	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	21-26-18	1,950	hd. sd. drilling
Temblor Dev. Co., No. 1 Blackwell Corner, Kern Co.	14-26-19	1,030	suspended
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	3,830	cemented
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	511	redrilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	400	gr. sd. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Panorama Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-31-21	4,019	suspended
Kent & McDonald, No. 1 Carrizo, San Luis Obispo Co.	3-32-22	2,000	br. sh. drilling
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	cleaning out
Paso Robles Synd., No. 1 Paso Robles, San Luis Obispo	34-27-11	4,040	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,615	suspended
Cent. Coast Inv., No. 1 Atascadero, San Luis Obispo Co.	1-28-12	rig	rigging up
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	1,475	sd. sh. drilling
Jergins, A. T., No. 1 Arroyo Grande, San Luis Obispo Co.	6-32-13	1,875	abandoning
Pacific Inland, well No. 1, Monterey Co.	19-23-15	1,345	fishing
Brown, W. F., well No. 1, Monterey Co.	13-23-14	800	suspended
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well—idle
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	rig	suspended
Kettleman Lakeview, No. 1-A Dudley Ridge, Kings Co.	20-23-20	1,095	recemented
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	4,315	recemented
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,370	hd. sd. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,850	cleaning out
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,180	redrilling
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,498	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	955	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,195	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31- 23- 3	2,520	redrilling

Central West Looks for Improvement

Few Completions Reported Outside the Central Ohio Field but Talk of Wildcat Development During the Fall Months

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Sept. 14.—The Central West Field showed few completions outside of the Central Ohio Field although the talk is that wildcat development will show an increase during the fall months.

In the old Lima Field of northwestern Ohio only one completion was reported, McPherson and others' No. 1 Ella Walten farm, Section 16, Tymochtee Township, Wyandot County, which was a dry hole in the Trenton at from 1,445-1,507 feet. John Greege and others' test on the F. Flechsenhar farm, Section 22, same township, has a light oil showing in the Trenton lime 1,504-84 feet.

CENTRAL OHIO

In the Central Ohio Field 2 oil producers with an initial of 68 bbls. were completed, 6 dry holes and 5 gas wells, while on the outer edge of the field 4 wells were reported for Meigs County, 1 being dry and 3 were gas, making a total of 17 wells, 68 bbls. production, 7 dry holes and 8 gas wells. This is one of the best weeks for completions for a long period.

In Ashland County, Montgomery Township, the Commonwealth Gas Corp. drilled in a dry hole on the J. B. Shultz heirs farm, Section 3. In Orange Township, the Ohio Fuel Gas Co.'s No. 1-5,518 N. S. Stackhouse farm, Section 9, found broken sand from 2,612-13 feet and was reported dry. The Commonwealth Gas Corp. has a rig in for No. 1 D. A. Phillips farm, Section 15, Milton Township.

In Lorain County, Columbia Township, the Ohio Fuel Gas Co. found a gas well in No. 2-5,538 John Tomes farm, Lot 89.

In Medina County, Chatham Township, Edson Sons Co.'s No. 26 Marcus A. Frank farm, Lot 16, is reported with an initial of 50 bbls., from 411-520 feet, and Curtis & Eaken's No. 3 Harriett Broadsword farm, Lot 16, is reported with 18 bbls. initial from 350-79 feet. Commonwealth Gas Corp. is drilling No. 1 Dick Barnes farm, Section 18, Homer Township, same county.

In Wayne County, Cannan Township, the Ohio Fuel Gas Co. has a light gas well in No. 3-4,347, Mary Notestone farm, Section 20, by deeper drilling.

In Licking County, Hopewell Township, the Emerald Petroleum Co. has a light gas well on the Hartman-Laughman land, Lot 17, from 3,138-64 feet.

In Muskingum County, Wayne Township, the Atha Co. has a dry hole in No. 1 on the Richard Huff farm, Section 3, at a total depth of 3,690 feet. Same company has a location for No. 5 W. H. Atha farm, in the first quarter of Falls Township, same county.

In Athens County, Waterloo Township, the Standard Natural Gas Co. is reported drilling No. 5 Almeda J. Young farm, Section 12. Wittmer Oil & Gas Co. has a rig in for No. 1 on the Valley Mining Co.'s holdings in fractional Section 6, York Township.

Stark County

In Stark County, Lawrence Township, Wittmer Properties, trustee, reports a dry hole in No. 1 J. Kostalink farm, Section 15, in the Clinton lime at 3,994 feet. Same company has a light gas showing in No. 1 Mary J. Shuman farm, same section, at 3,897 feet. In Jackson Township, Wiser Oil Co.'s No. 1 Louis A. Firestone farm, Section 34, is a fair gas well in the Clinton lime at 4,453 feet, and Smith and others have a good gas well in No. 1 W. Rudy and others' property, Section 7, same township. East Ohio Gas Co. is drilling No. 1 George H. Charls farm, Section 25. Brebdall and others are drilling No. 1 J. H. Carnes, Section 16, also No. 1 Stewart & Hoover farm, Section 21, same township. Same firm has a rig in for No. 1 Joseph Warth farm, Section 16, and for No. 1 J. A. Lauby, Section 12, same township. Kime and others have a rig on the Margaret Taggart farm, Section 26, Jackson Townhsip, and Boettler and others have a rig up for No. 1 E. Lewis farm, Section 16.

In Guernsey County, Cambridge Township, W. C. Urban and others' test on the Charles D. Johnson farm, Section 3, is a dry hole at 1,236 feet. There was a slight showing of gas from 1,194-1,214 feet, but it was given up as a commercial producer. Keith Brothers are drilling No. 1 William T. Virtue farm, Section 12, Wheeling Township, same county.

In Belmont County, A. C. Peters and others are drilling No. 2 Charles McLaughlin farm, Sections 32 and 36, Somerset Township.

In Columbiana County, Penn Crude Oil Co. is drilling No. 1 H. and A. Miller farm, Section 5, Knox Township.

In Morrow County, Chester Township, H. E. Perkins has a dry hole in No. 1 C. R. Levering, Sections 5 and 9, Chester Township, at 4,108 feet.

In Meigs County, Bedford Township, Ohio Fuel Gas Co. has a light gas well in No. 1-5,492 A. J. Wingett farm, Section 27, at 1,662 feet. Same company also has a light gas well in No. 1-5,544 on the J. C. Chase farm, Section 34, Salisbury Township, same county, at 817 feet. Doctor Gribble and others' No. 1 D. F. McNaughton farm, Section 35, same township, is at 815 feet. Harrisonville Oil & Gas Co. found a dry hole in a second test on the Alf Plummer farm, Section 24, Rutland Township, same county, at 862 feet. Doctor Bing and others are drilling a second test on the H. E. Weaver farm, Section 35, Salisbury Township.

In Knox County, Union Township, Hulse & Kundtz found a dry hole in a second test on the J. H. Colopy farm, Section 23, at a total depth of 2,916 feet. There were slight showings of both oil and gas in the Berea sand.

INDIANA

Only two completions were reported from the Indiana fields, both being gas wells. One is Ben Ruble's No. 1 on the Bernard Gillooly farm, Section 34, Harrison Township, Daviess County, which showed 840,000 feet at a depth of 560 feet. Same party has moved the rig from the Gillooly farm to the Thomas M. Lambe farm, Section 27, same township, where a test is being drilled. The other was drilled by the Old Dominion Corp. on the Suphine farm, Section 9, Washington Township, Greene County, where a showing for gas was found at a depth of 2,000 feet, the first test for that farm.

Paul F. Simpson, state gas supervisor, department of conservation, division of geology, makes the following report of development work over the State:

(Continued on Page 110)

Sixteen Completions in Eastern Area

Largest Week's Work in Two Months. None of the Five Oil Producers Was Large and Eleven Completions Were Gas Wells

By Staff Correspondent

PITTSBURGH, Pa., Sept. 14.—Demand for Pennsylvania crude continues heavy in the East and, at the same time, shipments of Mid-Continent and East Texas crudes into this district have increased. Production of local oil is inadequate at the present time and stocks are still being drawn on depsite the recent increase of allowable production. This is due to some operators who fail to see any advantage in increasing production at the present price levels, which, though benefited by four price increases, still remains below the cost of production.

Completions took an upturn during the week and 11 gas wells, 1 dry hole and 5 producers, with an initial production of 54 bbls., were reported. None of the wells was large but the total of 16 is the largest week's work for the past two months.

SOUTHEAST OHIO

All of the oil producers were in the Southeast Ohio fields and the largest was the test of John Walters and others on the M. E. and M. G. Stratton farm in the SE, Section 5, York Township, Athens County. It was drilled to 3,400 feet and in the Clinton sand and after shot, it produced 30 bbls. the first day. In Belmont County, W. P. Wasmuth and others drilled a test on the W. F. Sampson farm in the SW, Section 20, Somerset County. It reached the grit at 1,926 feet and produced 2 bbls. the first day after shot.

There were three completions in the shallow drilling of Medina County. George W. Packard Lease No. 1 was tapped again by E. R. Edson & Son Co. drilling their No. 18 to 408 feet which produced 10 bbls. the first day after shot. This is in Section 13, Chatham Township, and Lot 4. In Section 16, same township, on Lot 20, the same operators completed No. 24 on the Morris A. and Eva Franks farm. This well was also shot and produced 10 bbls. the first day from 540 feet. On Lot 22, Section 16, Chatham Township, Curtis and Eakin drilled No. 6 on the Thomas Brown, Jr., farm to 385 feet. It produced 2 bbls. the first 24 hours after shot.

In Monroe County, J. E. Lumbadis and others completed a test on the George Fogle farm, Section 9, Franklin Township. It was drilled in the Berea sand at 1,794 feet and is a gas well rated at 185,000 feet. In Vinton County, Donahue and others drilled a test on the William Gibbons farm, near New Plymouth, in Section 36, Brown Township. It went to the grit at 835 feet and after shot produced but 1 bbl. the first day. The location was abandoned.

Drilling in Ohio

In Jefferson County, the Sanders Oil Co. is drilling on the Moreland heirs' farm in Section 7, Island Creek Township. In the same township, and Section 4, N. A. Sutton Oil Co. has its second well on the W. J. Lee farm well under way. No further progress has been made in the deep test of the Benedum Trees interest on the Wayne Coal Co. tract, Section 26, Island Creek Township. The tools are still in the hole at 5,300 feet. In Knox County, M. F. Whitehill has resumed operations and has started drilling on the James Allen farm, Section 3, Jackson Township. It will probably go to the Clinton sand.

In Vinton County, the Ohio Fuel Gas Co. is drilling on the B. Geiger farm, Section 29, Brown Township. In Athens County, the Standard Natural Gas Co. has passed the 1,000-foot level on the R. Young farm, Section 12, Waterloo Township. In Monroe County, William E. Gerber and others have a second well drilling in the W. W. Marsh farm in Franklin Township, Section 21, and it is soon to be reported. In Washington Township, Section 7, J. C. Carner and others have a test drilling on the Bessie Dillon farm.

WEST VIRGINIA

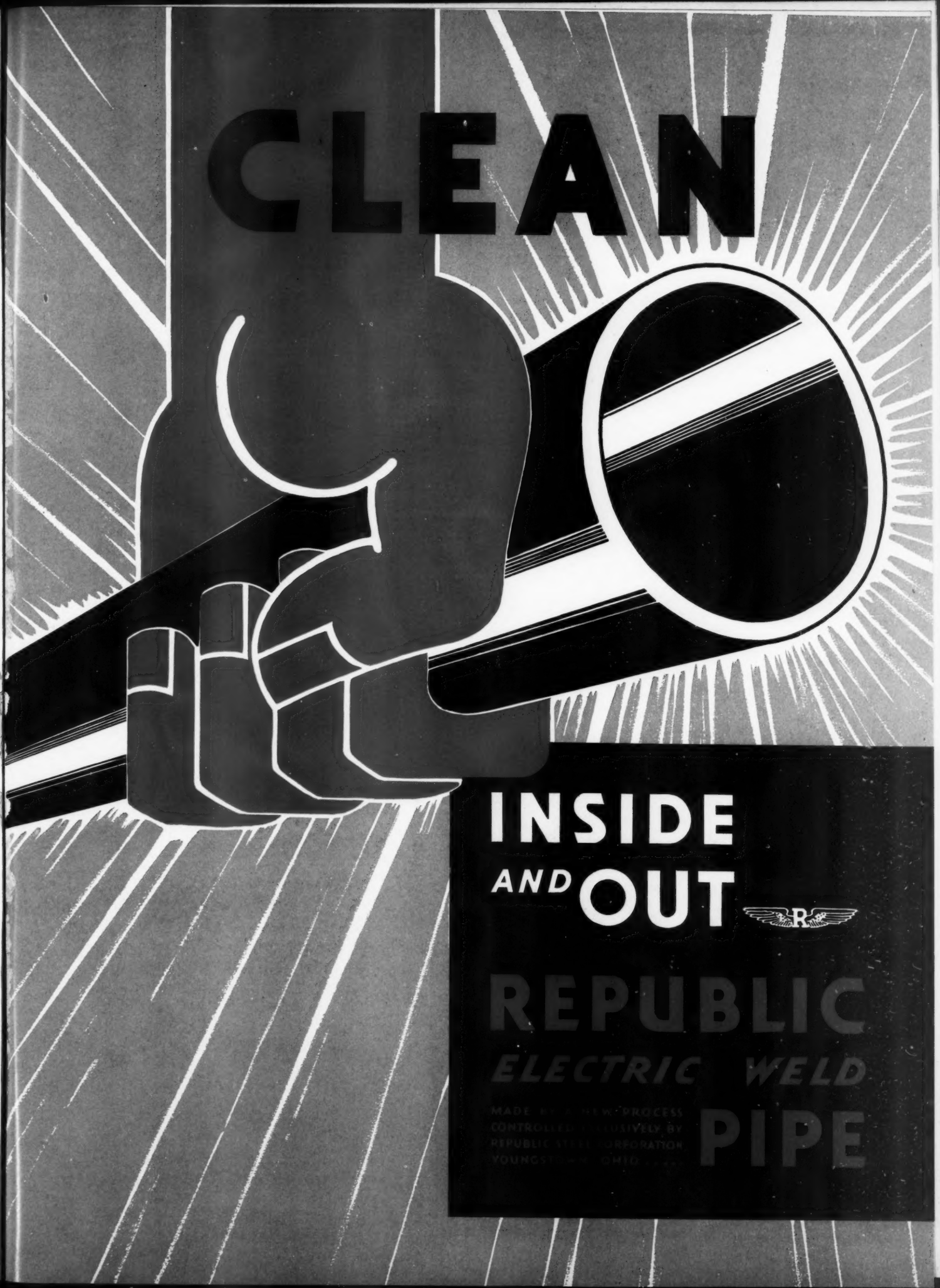
Again, during a week's operations in West Virginia, there was no additional production reported. Of the 10 completions in this field, all were gas wells with but one rated at over 500,000 feet a day. This was the Pure Oil Co.'s No. 53 on the Federal Coal Co. tract in Sherman district, Boone County. It was drilled to 3,047 feet. In the same county, the Turtle Lick Gas Co. drilled a test on the J. S. Hill farm, Scott district, and struck a flow of slightly over 200,000 feet a day in the Big Lime at 1,270 feet. It is still drilling with the gas shut off to test deeper structures. In Washington district, the Owens Illinois Glass Co. completed its No. 6 on the Powell heirs' farm at 1,840 feet with a showing for a fair gas well. This well may be drilled deeper.

The first completion in Cabell County in some weeks was the Larner Gas Co.'s No. P-86, on the A. A. Swann farm in Grant district. It reached the Brown shale at 3,540 feet and will make a gasser. In Calhoun County, Ed Smith and others drilled their old test on the John Evans farm in Lee district deeper to 2,157 feet and in the Injun sand. The flow of gas was considerably increased and it is now a fair well. In Doddridge County, W. L. Travis completed his test on the C. A. Stutler farm, Grant district, at 1,990 feet and in the Big Injun sand. It will make a small gas well.

Kanawha County had two completions. In Cabin Creek district, the Winifrede Co. drilled its No. 3 on its own tract deeper to 3,160 feet and it is now rated at over 300,000 feet a day. In the same district, the same company drilled its No. 14, same lease, to 2,080 feet and completed it as a gasser starting in in excess of 350,000 feet a day.

In Mingo County, the United Fuel Gas Co. completed its No. 4332 on the Cotiga Development Co. lease in Hardee district at the fairly deep level of 4,848 feet. The well is now being cleaned out and tested. At present the flow of gas is showing for slightly greater than 200,000 feet a day, naturally. In Roane

(Continued on Page 70)


CLEAN
INSIDE
AND OUT
REPUBLIC
ELECTRIC WELD
PIPE

CLEAN-

IN 70 MILES OF LINE, THE ROTARY SCRAPER WAS NOT STOPPED

Almost unbelievable, isn't it? Yet we have the word of Ford, Bacon & Davis that when the 70 miles of 8-5/8" O. D. line for Arkansas Natural Gas Co. from Gregg Co., Texas to Shreveport, La. was completed, a rotary scraper was put through the entire line, including two river crossings, without being stopped.

What finer tribute than this to the clean inside surface of Republic Electric Weld Pipe! And this is not all. Unusual speed was made in constructing this line because the pipe was round, the walls were of uniform thickness and the metal itself was of uniform structure. Yet, in spite of this speedy work, the line was tested hydrostatically and is now operating at a full pressure of more than 800 pounds without a single leak having developed.

Just a few months ago salesmen were telling the many advantages of Republic Electric Weld Pipe. Today pipe line contractors and operating and construction executives are discussing its remarkable performance. And more than four thousand miles are now in service. Additional details upon request.

REPUBLIC

ELECTRIC WELD

MADE BY A NEW PROCESS
CONTROLLED EXCLUSIVELY BY
REPUBLIC STEEL CORPORATION
YOUNGSTOWN . OHIO .....

PIPE

Personal Paragraphs About Oil Men

George E. Heyer, president of Cranfill-Reynolds Company, Houston, Tex., has been in New York City on business.

* * *

Charles Rowe, geologist in charge at the San Antonio, Tex., office of the Sun Oil Company, was off for a time on a vacation trip.

* * *

W. R. Peel, Dallas representative of General Motors Fleet Sales Corporation, was in Tulsa last week calling on oil company buyers.

* * *

R. M. Franks, head of the land department of the Ramsey Petroleum Corporation of Oklahoma City, is spending considerable time in Denver and Greeley.

* * *

R. V. Hanrahan, president of the Humble Pipe Line Company, Houston, and Mrs. Hanrahan spent several days in San Antonio, Tex., on a pleasure trip.

* * *

C. C. Dickerson, head of the land department of the Sun Oil Company at San Antonio, Tex., says the fishing is good at Port Arthur, Tex. He tried it for a week while on vacation.

* * *

Frank P. Book, of Detroit, Mich., one of the leading executives of Regal Oil & Refining Company of Calgary, Alberta, recently visited Calgary and Banff in connection with oil and other interests.

* * *

Barney Terrell, formerly with the Standard Oil Company of Indiana, has joined the scouting department of the Stanolind Crude Oil Purchasing Company being located in the East Texas Field.

* * *

Wynne Merrill has returned to Petrolia, Ontario, on a three months' furlough from Peru, where he is on the International Petroleum Company staff. Mrs. Merrill and children have been in Petrolia since last spring.

* * *

E. W. Ticknor, has been appointed superintendent for the Magnolia Pipe Line Company in the Midland district of West Texas. He was formerly located at Kilgore, in East Texas, and succeeds R. W. Brown, who died suddenly.

* * *

Burton Sage, of Toledo, Ohio, formerly of the Bradford, Pa., Field and the old Lima Field, is looking toward southeastern Michigan as a gas producing area at comparatively shallow depths. Mr. Sage was with the South Penn Oil Company in Bradford, Pa., for a long period.

* * *

Don Knowlton, petroleum engineering, Charles E. Klein, superintendent of production in Texas, both of Bartlesville, and C. M. Oden, in the production department of Breckenridge, all with the Phillips Petroleum Company, have been making an inspection trip of the company's properties in West Texas.

* * *

I. R. Sheldon, district agent for the Atlantic Oil Producing Company at San Antonio, Tex., has been joined by Mrs. Sheldon and three children who drove through from Narragansett, Rhode Island. Mr. Sheldon was placed in charge of the San Antonio office about six months ago.

* * *

Mr. and Mrs. E. B. Rubsamen, of San Antonio, Tex., with their little son, spent three weeks lately visiting Mr. Rubsamen's mother in Thousand Island, N. Y. They also visited in New York City. Mr. Rubsamen is an official of the Trinity Drillers and the S. R. C. Oil Company and C. R. M. Oil Company, all with main offices in San Antonio.

* * *

Judge J. M. Stevenson, of Winchester, Ky., president of the Rex-Pyramid Oil Company, spent a short time in the Owensboro Field, where his company has interests. After looking over the Kentucky property around Owensboro, he left for Texas and Oklahoma to inspect properties of his company in those fields. Judge Stevenson was accompanied by his son, Frank Stevenson.

B. T. McNeil, marketer of petroleum products, Houston, Tex., has returned from a vacation trip in western Texas.

* * *

Jesse C. Moore of Claremore, Okla., was in Denver recently on his return from Calgary, Alberta, where he was at work in the Turner Valley Field.

* * *

Raymond Hunt, formerly of Indiana, will have charge of the Michigan territory of the Empire Oil & Gas Company, having been transferred from Oklahoma.

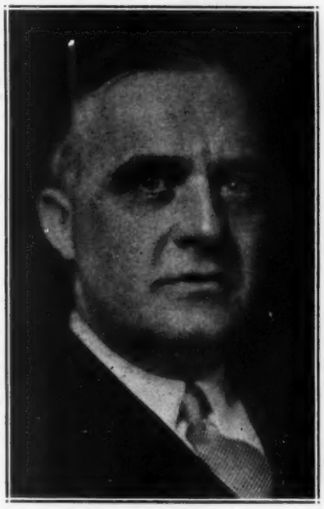
* * *

L. E. Delcuze, assistant to the vice president of the Gulf Production Company, Houston, Tex., has returned from a vacation trip to San Antonio, Brownsville and Temple, Tex.

* * *

Arthur W. Dustin, consulting geologist, has resigned as president of the Mid-Continent Royalty Owners Association. Private interests keeping him away from Tulsa caused him to give up the leadership of the organization.

Men of the Industry



J. C. Hilton

J. C. Hilton, successor to D. R. Weller as president of the Standard Oil Company of Louisiana, was previously purchasing agent of the Standard Oil Company of New Jersey and a member of that organization's board of directors. For 16 years he was in the service of the United States Navy, much of his time being devoted to supply and maintenance activities.

During the World War Mr. Hilton handled the procuring of fuel and shipping facilities for maintenance of the fleet, and prior to the organization of the United States Shipping Board he took care of the requisitions of all cargo vessels for the navy. In addition he acted as special representative of the Secretary of the Navy in contacting with other departments of the Government on fueling requisitions and chartering matters. He received a special letter of recommendation from the Secretary of the Navy and the Navy Cross was awarded to him. At the close of the war he retired with the rank of commander.

Joining the Standard Oil Company (New Jersey) in 1921 as assistant purchasing agent, Mr. Hilton became purchasing agent in 1927. Three years later he was elected a director of the Standard Oil Company of New Jersey (the Delaware company) in charge of all purchases.

Herman Taubman of the Taubman Supply Company is on a business trip East including Chicago, New York and Philadelphia.

* * *

K. C. Heald, chief geologist for the Gulf Companies, Pittsburgh, Pa., was in Tulsa last week en route to his home from Texas.

* * *

James H. Gardner, of Tulsa, is looking over the eastern Colorado fields and made several reconnaissance surveys from an airplane.

* * *

Frank Paul Zoch, Jr., of San Antonio, Tex., an independent operator and Elizabeth Ann Kircheville, of San Antonio, were married in that city August 15.

* * *

R. F. Fike, head of the automobile department of the Mid-Continent Petroleum Corporation, is spending a vacation on the Pacific Coast, at points ranging from Portland, Ore., to Los Angeles.

* * *

John Story, who has been living in San Antonio, Tex., for some time, has moved back to Lockhart, Tex. Mr. Story and Frank Lefevre brought in the discovery well in the Lytton Springs Field.

* * *

Fred Devinney, formerly of Tulsa, now St. Louis representative of James B. Sipe Company, paint manufacturers, Pittsburgh, Pa., was in Tulsa last week. His territory now embraces five states.

* * *

Lyman C. Reed, geologist, who has been in the Argentine for a couple of years for the Standard Oil Company of New Jersey, is back in the United States and is staying for a short time at Bryan, Tex.

* * *

P. M. Miskell, general manager of the refining and marketing division of the Empire Oil & Refining Co. has returned to his home in Tulsa after spending several weeks as a vacation along the coast in Massachusetts.

* * *

P. C. Murray, formerly with the Moody Corporation and Superior Oil Corporation, with offices at Houston, Tex., has resigned to become associated with Cranfill-Reynolds Company, Houston, as assistant to the president.

* * *

Sidney H. Keoughan, president of the North European Oil Company, spent a few days in Denver, having made the trip from Germany to look after local interests. He was recently elected a director of the Colorado Associated Oil Company, which is preparing to test a large block northwest of Fort Morgan, Colo. He went from Denver to New York.

* * *

E. R. Stanley, a graduate of the Missouri School of Mines and for several years associated with the Getty Oil Company, Macmillan Petroleum Company and California Eastern Oil Company, and Harry Stoltz, a graduate of Stanford University and for several years associated with the Julian Petroleum, California Eastern Oil Company and Sunset Pacific Oil Company, have opened up consulting offices in Los Angeles.

* * *

Dr. E. R. Lederer, vice president in charge of refining of the Texas Pacific Coal & Oil Company, was the speaker at the monthly meeting of the San Antonio section of the American Association of Petroleum Geologists. His address was devoted to the later methods that have been applied to refining. About 40 geologists were in attendance from over Southwest Texas.

* * *

Martin H. Mosier, president of The Petroleum Company, which he organized more than 20 years ago, is recuperating at the Good Samaritan Hospital in Los Angeles from the effects of a fractured hip resulting from a fall a few days ago. Mr. Mosier, who is 75 years of age and resides at 55 Fremont Place, Los Angeles, is well known in California, Texas and Oklahoma Fields, where he has carried on extensive operations for a number of years.

Natural Gas Industry Developments

NASHVILLE COMMITTEE FAVORS NATURAL GAS

NASHVILLE, Tenn., Sept. 14.—The Natural Gas Committee, appointed by the president of the Nashville City Council, has submitted a preliminary report which says the proposition of supplying Nashville with natural gas led the committee into a study of the natural gas situation throughout the country and especially in the cities in the South. The committee has found the following facts:

That sufficient natural gas can be economically brought to Nashville to supply Nashville's needs. The adjustment of appliances is a minor problem which has been easily met in a multitude of cities.

That, wherever natural gas has been brought, there has been a material reduction in the rates.

That it is unwise to permit the sale of natural gas as a mixed product, because it complicates the determination of costs, and is more expensive to consumers.

The immediate problem facing the city of Nashville is the petition filed by the Nashville Gas & Heating Co. before the Railroad and Public Utilities Commission, asking for an order directing the company to lay a pipe line in the city streets for the purpose of bringing natural gas into Nashville. It purposes, for the time being, to sell a mixed product, and holds out the prospect that it may sell natural gas entirely, in the future. It asks all of this be done, without obtaining the consent of the mayor, city council, or the people of Nashville.

The petition of the gas company should be opposed and defeated for the following reasons:

The right to grant a natural gas franchise is vested in the city of Nashville under its authority to grant franchises as set forth in the city charter, and was expressly reserved to the city in the gas franchise ordinance and this right was expressly recognized by the Supreme Court in its recent decision in the gas case when the court said:

"The franchise granted by the city of Nashville to the gas company was not exclusively in the sense that a monopoly was given to the injury of the public. The right was reserved to grant a franchise to natural gas companies . . ."

The power to grant the privilege to place pipe lines in the city streets is vested in the mayor and city council under the city charter. The gas franchise expressly provides for obtaining the consent of the city. The Supreme Court in the recent decision recognized the right of the city when it said:

"The control of the streets and highways, primarily in the state, could be vested in the state's subordinate agencies, the municipalities and counties. That was done under the acts incorporating the city of Nashville through Chapter 114, Acts of 1883, and subsequent amendatory acts."

The time has come for local governments to protect their rights. Centralized control has been recognized as inimical to the growth and development of local self government. The officials of Nashville are custodians of certain powers and rights reserved to the people of Nashville, and a surrender of the rights of the city would be a betrayal of this trust.

Furthermore, the rates proposed mean an increase to a large number of gas consumers. All using under 1,650 feet will pay more than under the present rates.

If the matter is left to the city of Nashville, a marked reduction in the gas rate with no increase to any consumer can be worked out.

The committee therefore recommends:

That the mayor be requested to instruct the city attorney to oppose the petition filed by the Nashville Gas & Heating Co. before the Railroad Utilities Commission and that the mayor be authorized to employ such experts, as he may find advisable to safeguard the rights of the city of Nashville and its citizens.

The Natural Gas Committee, signing this report consisted of R. B. McConnell, chairman; W. A. Craddock, George W. Lowery, Jr., L. G. Durr and Elkin Garfinkle.

The report was adopted by the city council.

NOMINEE FOR HEAD GAS DEPARTMENT A.G.A. HAS EXTENSIVE EXPERIENCE

Major T. J. Strickler, vice president and general manager of the Kansas City Gas Co., has been selected by the nominating committee of the natural gas department of the American Gas Association for election as department chairman at the annual convention in Atlantic City next month. He is a past commander of the Department of Missouri of the American Legion and has been president of the Kansas City Safety Council for two years; general chairman of Kansas City's charities campaign for two years; president of the Missouri Association of Public Utilities; vice chairman of the club presidents round table, and is a vice president of the Chamber of Commerce of Kansas City.

Major T. J. Strickler

Major Strickler graduated from Kansas University with a degree of Bachelor of Science in the course of civil engineering and was launched upon his career in his profession by being named to the United States reclamation service for duties which included connection with Garland Canal and Corbett and Shoshone Dams. He was in charge of the farm unit adjustment and preparation of farm unit plats in the lower Yellowstone project, Wyoming, and in charge of force account construction on the Milk River project, Montana, including construction of the Dodson Dam and the structures of the Dodson Canal.

In 1911 he accepted a position with the Kansas Utilities Commission from which he rose in rank from assistant engineer to that of chief engineer, a position held by him with "time out" for the World War, from 1913 until 1920, when he became consulting engineer for the Empire Companies in Bartlesville. Advancement came quickly and from 1925 to 1927 he was employed by the Gas Service Co., Kansas City, Mo., as vice president in charge of rates, valuations and public relations of some 30 companies operated by that concern. In 1927 he was chosen vice president and general manager of the Kansas City Gas Co.

KANSAS GAS RATE CASE UP TO SUPREME COURT

The claim of power in the Kansas Public Service Commission to determine the reasonableness of the 40-cent rate charged local gas supply companies by the Cities Service Gas Co., affiliate of the Henry L. Doherty Co., is challenged in an appeal filed with the Supreme Court of the United States by the Western Distributing Co.

The Distributing company has appealed from the decision of a special three-judge court sitting in the District of Kansas which denied its bill in equity to enjoin the enforcement of an order establishing rates for gas to be sold for domestic purposes in Eldorado, Kans. The suit was dismissed on the ground that the plaintiff had not exhausted its remedy before the Public Service Commission.

An application for increased rates had been dismissed by the commission on the ground that the plaintiff company had failed to introduce evidence "proving to the satisfaction of the commission the reasonableness of the price of 40 cents per 1,000 feet paid by the plaintiff to the Cities Service Gas Co. at the city gate."

The lower court held that the plaintiff, before it can seek any remedy in the Federal courts, must show that the price it pays for gas at the city gate and other charges paid Henry L. Doherty & Co. and Cities Service Gas Co. are fair and reasonable. The fact that the rate at the city gate is an interstate rate does not preclude inquiry by the commission, it was held, into the reasonableness of such a rate for the purpose of fixing the local rates at Eldorado.

The Distributing company complains in its appeal filed with the Supreme Court that the lower court erred in not finding that the reasonableness of the 40-cent rate was adjudicated by the Supreme Court of Kansas in the so-called Wichita case. It also erred, it is claimed, by holding that the plaintiff had not exhausted its administrative remedy because of its failure to adduce evidence as to the reasonableness of the 40-cent rate and to justify its contract for the supply of gas.

VOTE FOR CITY DISTRIBUTION

WELLINGTON, Tex., Sept. 14.—Wellington has voted a $65,000 city bond issue for establishing a municipal gas distribution plant. The vote, 329 to 97, ended a bitter fight against the Northern Texas Utilities Co., present distributor of gas here and in two score other West Texas cities. Mayor W. W. Neeley and the city council, objected to the present gas rate—75 cents per 1,000 feet. The company has a distribution plant in operation here, and it has not been decided by the council whether to begin condemnation proceedings against the plant or begin laying plans for the erection of a new plant.

CITY-OWNED GAS WELL

INDEPENDENCE, Kans., Sept. 12.—A gas well drilled in Riverside Park by the city park board, estimated at 100,000 feet daily, was found at 1,120 feet and drilled in at small expense through co-operation of drilling contractors and equipment firms. Mayor Ralph Mitchell plans to use the gas for heating of park buildings and furnishing gas through pay meters to picknickers. It will save the city $500 yearly. Already there is talk of drilling enough wells on 130 acres of city land to furnish gas for the city water plant. This would save the city $10,000 a year in fuel.

CARBON BLACK MARKET

Manufacturers and dealers in carbon black report no improvement. The rubber tire makers, the chief consumers, are still on a restricted production schedule. Although hopes were held out for a better movement in the last half of September, the outlook for the initial half of the month was admittedly poor. Texas gas black held at 3 cents for bulk at the works, while Louisiana continued at 3.1 cents. Paint makers were hand-to-mouth buyers of various grades of black. All spot quotations were unaltered. The earth colors remained in a rut. Consumers bought for needs, and the absence of orders made the market look soft. Sentiment for the fall planting season was mixed. Some expected a considerable improvement, while others held that although a seasonal upswing would show it would not be large.

GAS FOR SHAWNEE SCHOOLS

Gas burners are to be installed in all school buildings of Shawnee, Okla., by the Western Servic Co., to whom a franchise was recently awarded by the voters. They will be presented to the school system. The gas corporation made its first concession to the schools when it had written into its franchise that all gas consumed by the schools will be charged for on the basis of one meter. This gives the schools the lower rates that become effective after the first 50,000 feet of gas.

WESTERN OKLAHOMA RATES

A gas rate of 45 cents per 1,000 feet has been asked of the Oklahoma Corporation Commission for consumers in seven western Oklahoma towns, served by the Consolidated Gas Utilities Co.

The towns, Watonga, Okeene, Canton, Fairview, Thomas, Custer City and Butler now have a rate of 12 cents for the first 100 feet and 25 cents for each 100 feet over 2,800 feet.

SCOTTSBLUFF, NEB., GETS GAS

The North Central Gas Co. has turned gas into the mains at Scottsbluff, Neb., and thereby added another completed link to its system.

OKLAHOMA NATURAL GAS

New Oklahoma City, Okla., offices are now occupied by the Oklahoma Natural Gas Corp., which for many years maintained its headquarters at 112 North Broadway. The new offices are in the Key Building at Third and Harvey Streets. W. P. Canavan, vice president, directed the removal.

FOR MUNICIPAL SYSTEM

MEMPHIS, Tex., Sept. 14.—In a heated election, Memphis polled 10 to 1 in favor of a municipally owned gas distributing system. Bonds were voted in the sum of $65,000.

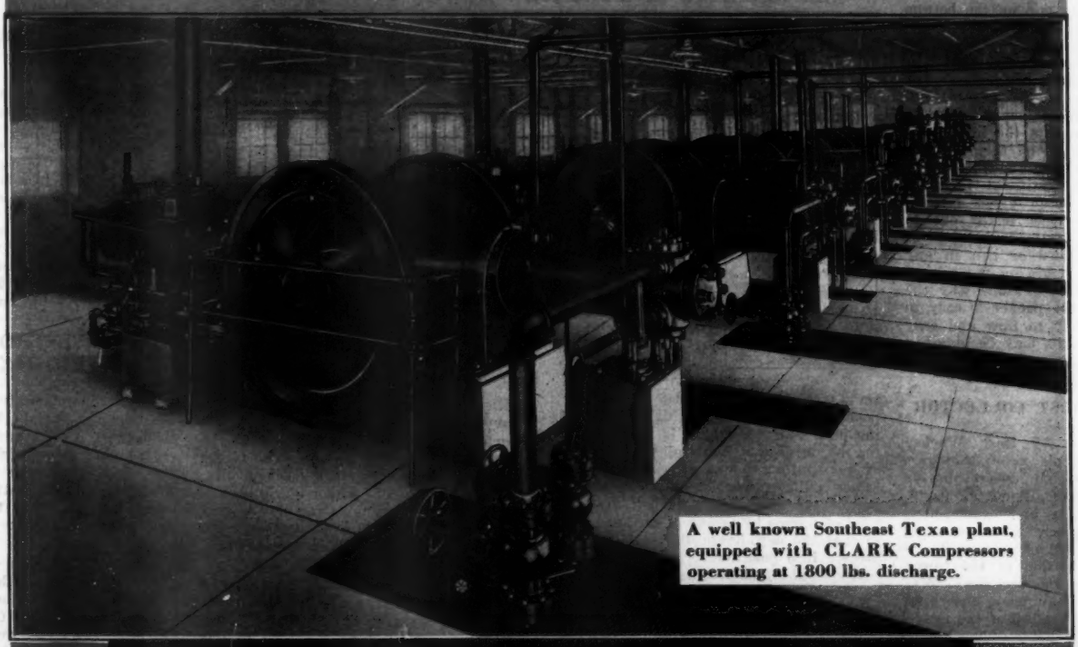
.When you beqin Gas Conservation

. . . REMEMBER .

that CLARK Super-2 Cycle Engines and Compressors have won preference in this field by reason of their economy and dependability.

CLARK BROS. COMPANY
Olean, N. Y.

Export Office: New York City
Mid-Continent Sales Offices: Tulsa, Okla. and Houston, Tex. *Warehouses:* Tulsa, Okla.; McCamey and Sweetwater, Texas; Artesia, N. M.
California: Smith Booth Usher Company, 228 South Central Avenue, Los Angeles
Foreign Offices: Clark Bros. Company, London; Balkan States Trading and Importing Co., Bucharest, Roumania



A well known Southeast Texas plant, equipped with CLARK Compressors operating at 1800 lbs. discharge.

CLARK

Oil Industry Equipment and Supplies

FLOW PACKER DESIGNED TO DO TRIPLE SERVICE

The American Iron & Machine Works Co., Oklahoma City, Okla., is introducing a new type of flow packer, which is considered a combination of flow packer, pump packer and air lift. Where the rock pressure is 50 pounds or more the American flow packer is calculated to save buying a string of tubing and rods. In many cases a well will collect enough gas to flow the well with this type of packer, for many months, when otherwise it would have to be pumped. The American packer can be set in a liner, lime formation or in casing.

One of the features is the construction which permits oil above the packer to return through a valve in the packer, so that it may be lifted instead of remaining above the packer. This principle eliminates a difficulty in case the packer should need to be pulled, by taking the weight off the cup above and allowing the cup on the bottom of the packer to expand and adhere to the casing because of the gas pressure underneath.

Where the natural gas is not strong enough to flow the well the American packer permits the use of the gas or air pressure to be turned in at the casinghead, and it will cause the well to flow with little artificial pressure. Careful study has been given to this packer and it has been tested out in many kinds of wells in the Mid-Continent area. It may be pulled or run in any depth hole without strain on the tubing. These are some of the reasons why the manufacturer says the packer is easy to run, easy to set, easy to flow and easy to pull. Further details may be obtained by writing to the company.

MULTI-WASH DUST COLLECTOR

Claude Schneible, 35 East Wacker Drive, Chicago, has placed on the market a new multi-wash dust collector simplified to eliminate all moving parts, spray nozzles, pockets and dead zones. Dust laden air, vapors, gases or other products to be cleaned or recovered are introduced at the bottom of the tower and at a tangent to the periphery. Water or other liquid cleaning or absorbing media introduced at the top of the tower falls in a spray through succeeding plates of the tower, giving an intense, intimate contact with the upward moving air or vapor which has continued to spiral in its course due to the vanes in each plate. There are two washes for each plate and standard equipment provides six plates or 12 washes.

ORGANIZE SUPERIOR TOOL CO.

A. R. Eppenauer and Mrs. A. R. Eppenauer of San Angelo, Tex., and Carl G. Nelson of Porterville, Tex., have organized the Superior Tool Co. with a capital stock of $10,000. Mr. Eppenauer, Carl G. Nelson and Earl Carr previously organized the Western Torpedo Co. Both firms maintain supply houses in Wink, in Winkler County, and Porterville, in Loving County. Mr. Eppenauer is also head of the Eppenauer Drilling Co. and Mr. Nelson is field superintendent.

AMONG THE EQUIPMENT HOUSES

The National Acme Co. of Cleveland, Ohio, and Windsor, Vt., has entered into a license agreement with the Dardelet Threadlock Corp. to manufacture, use, and sell bolts, nuts, and screw machine products threaded with the Dardelet self-locking screw thread.

Announcement has come from the general offices of the International-Stacey Corp., Columbus, Ohio, that B. T. Ehrnman, formerly in the Chicago office of the company, has been transferred to St. Louis as division manager with offices in the Railway Exchange Building.

The Ludlow Valve Manufacturing Co., of Troy, N. Y., maker of hydrants, double gate valves, and multi-valves, will manufacture in Canada as the Canadian Ludlow Valve Manufacturing Co., Ltd. Offices are at 930 Wellington Street, Montreal, Quebec, and factories at Three Rivers, Quebec, St. Thomas, Ontario, and Fort William, Ontario.

W. C. Bruton, for many years sales engineer for the American Manganese Steel Co., working from the Oakland, Calif., office, has been appointed district sales manager for the Pacific Northwest territory comprising Oregon, Washington, British Columbia and Coeur D'Alene district in Idaho.

The Russell Manufacturing Co., Middletown, Conn., maker of Rusco brake linings and other automotive fabric products, reports a definite upturn in its business and is expanding the number of its sales and service outlets which now number more than 40,000.

At a meeting of the board of directors of the Johns-Manville Sales Corp., New York, T. K. Mial, R. C. Harden, G. R. Lewis, J. M. Taylor and Franklin Shuey were elected vice presidents, to have executive supervision of various territorial districts.

To make a survey of conditions in oil fields for his company, A. S. McIntyre, vice president and general manager of the Calmec Manufacturing Co., Ltd., of Los Angeles, Calif., has started on a trip through the Mid-Continent, Gulf Coast and Rocky Mountain states and into Canada. The company makes oil field specialties.

REVERSIBLE PULLER IS INTRODUCED BY MURPHY

Removal of worn liners and valve seats of pumps and engines of various types and sizes is said to be accomplished in a few minutes by the use of the portable reversible hydraulic puller, manufactured and distributed by the Murphy Tool Co. of Houston, Tex. The machine is set for either pulling or pressing, by merely turning the reverse valve as desired. In the pressing position its capacity is higher than on the pull. The strongback is hollowed out for the purpose of inserting various types of gear-pulling hooks or yokes for cathead, pulleys, wheels, etc., and also to permit the machine to be bolted to the head of pumps by means of the stud bolts so that the new liners and seats may be pressed into position.

A special stand permits the machine to be mounted with the ram pointing downward, thus affording a convenient 40 to 50-ton hydraulic press. Worn discs and seats are easily renewed in gate valves out in the field.

Attachments which go with this machine include various size expanding liner heads, valve seat heads for removing plain type valve seats, and special pullers for MacClatchie type seats; extension for shafts with special heads for engaging liners from the back end so that liners may be reclaimed. For the press are the ram head, bushing remover heads, hole punching dies, etc. Machines carried in stock range from 10 to 40 tons capacity, pushing or pulling. Special machines of any desired capacity may be had upon special order.

For descriptive literature write to the Murphy Tool Co., P. O. Box 721, Houston, Tex.

A bulletin distributed by Paul Arbon & Co., Tulsa, describes a new series of hoists designed for oil-field uses.

MACHINE FOR ELECTRIC WELDING IS INSTALLED

The recent installation of electric welding equipment in the Etna plant of Spang, Chalfant & Co., Inc., increases the facilities for the manufacturing of double length pipe in all sizes and gauges from 2 inches to 20 inches O. D., up to 55-foot maximum lengths, a process in pipe merchandising that makes possible greater economies in shipping and installation costs in the field.

Flash butt-welding of pipe, effected mechanically in a large specially built machine, is the process of joining lengths of pipe end to end through application of heavy electric current, achieving complete fusion of the metal.

Electric current is applied through heavy copper connected jaws or bands which clamp each piece adjacent to the ends where the weld is made. The pieces then are brought together mechanically, with the current on, which forms an arc and causes a continuous flashing of the metal from the fusing ends and heats the ends to a uniform welding temperature.

The current then is cut off and heavy pressure instantly applied, compressing the joint and forcing out practically all of the plastic material, including slag and oxides, and leaving the joint of the parent metal so closely knit that it is impossible of detection. During the process of welding the grain structure of material is refined and tests are said to prove that pipe welded in this manner is stronger at the point of weld than adjacent material.

A special trimming machine removes the rough edges of the flash from the joint, both inside and outside, after which the double length pipe is tested hydrostatically under maximum pressure.

LEAVITT TO MAKE SEPARATOR

The Leavitt Machine Co., Orange, Mass., has purchased the separator business from the Swendeman Corp., Boston, Mass., and announces that it will carry on the manufacturing and selling of the Swendeman separators and drains for compressed air lines.

MEN KNOWN *in* THE EQUIPMENT FIELD

Carleton J. Anderson, known in scores of oil fields, is now a member of the sales organization of A. Leschen & Sons Rope

Carleton J. Anderson

Co. of St. Louis. His headquarters are in Tulsa, and he will cover the Mid-Continent fields.

Mr. Anderson began work as a tool dresser in West Virginia in 1912. He became driller, assistant superintendent and then field superintendent, seeing service in many foreign countries as well as in the principal fields of the United States. Entering the export sales department of the Oil Well Supply Co., he visited the important operating oil fields of the world. One of the principal items sold by him in foreign oil fields was Leschen wire rope. Mr. Anderson is a qualified petroleum engineer.

WRIGHT INTRODUCES NEW ELECTRIC TROLLEY HOIST

A new line of electric trolley hoists offered by the Wright Manufacturing Co., Bridgeport, Conn., consists of the plain, geared, and motor-driven trolley types. The bearings of the trolley wheels are designed to absorb both radial and thrust loads, thus reducing the effort to move the trolley along the I-beam to a minimum.

In the motor-driven trolleys the wheels are driven on each side of the I-beam insuring smooth operation, and are equipped with a safety stop. Controllers for single-speed, two-speed, or variable speed can be furnished. The hoists can be mounted either parallel with or at right angles to the runway beam. While the standard lift is 18 feet, lifts of 9 and 36 feet can be provided.

Features of the hoist include full-size drums for long cable life, push button or pendant rope control, Tru-lay preformed cable, safety type limit switch, positive braking, and weather proof motors.

A. F. RUCKS ADVANCED

The C. J. Tagliabue Manufacturing Co. of Brooklyn, N. Y., manufacturer of instruments for indicating, recording and controlling temperatures and pressures, as well as industrial thermometers, has made A. F. Rucks general sales manager. Mr. Rucks has been connected with the company 18 years, for the last four as assistant to L. C. Irwin, vice president.

Timken has 77 Bearings on the Cleveland Pioneer Trencher and 47 on the "Baby Digger"

The Pioneer Trencher, built by The Cleveland Trencher Company, contains 8 Timkens in the crawler differential, 8 in the digging differential, 5 in the hoisting worm gear unit, 4 in the turret table, 4 in the boom lower truck, 24 in the boom idler wheels and 24 in the conveyor side rollers.

The "Baby Digger" has 8 Timkens in the crawler differential, 7 in the digging speed transmission, 8 in the digging differential, 11 in the conveyor drive, 4 in the lower truck, 5 in the motor transmission, 2 on the motor governor and 2 on the motor fan.

Such thorough protection against friction, radial-thrust loads, shock, abuse and neglect has an important bearing on contractors' profits through power and lubricant savings, uninterrupted service, long machine life and rock bottom maintenance costs. Specify Timkens.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

EFFECT OF AGE ON GRAVITY

Does the length of time consumed in the formation of oil have anything to do with its specific gravity? Since we know that the different strata of the earth's crust are of varying ages, I take it to be true that petroleum formed in these strata are of varying ages, too.—D. E. F.

Geologists tell us that the light oils are those of the greatest age. Dorsey Hager says on this point in his "Practical Oil Geology":

"As it is known that petroleum in strata of different ages varies, it is of course advisable to know the quality of the oil desired and bore for that stratum. For that reason, if no other, it is often important to know the ages of the formation through which the drill is to penetrate. It is generally true that the heavy oils occur in formations that are much younger than those containing the light oils although there are exceptions to this rule.

"The position of a well on the fold is most important as regards the gravity of the oil to be encountered. In a closed structure the lightest oil will occur near the gas line and the heavier oil near the water line, for petroleum is not a homogeneous fluid but has a mixture of a number of hydrocarbons which separate in a vessel according to their specific gravities.

"Where, however, there is an open structure the oil near the outcrop will be heavy, due to the escape of the volatile constituents; the oil a little further down the dip will be lighter, and then heavier oil will be encountered near the water line.

"Where faulting exposes the beds or allows the escape of oil along the fault plane, heavy oil may be expected in proximity to the fault."

STATUS OF THE GEOPHYSICIST

The various geophysical instruments for use in exploration for oil have been on trial now for several years. What is their standing now and that of their exponents? Have they stood up under actual field use? Are oil companies showing any disposition to add geophysicists to their staffs as they have added geologists?—E. R. S.

Geophysical instruments and their exponents are in better standing now than they ever have been before and there is evidence that their standing in years to come will be even higher. Large oil companies have been showing a marked disposition to add geophysicists to their staffs. It is being recognized that the field technique, particularly of the methods suitable in mining work, is relatively simple and that the physical principles involved in the methods are not beyond the ability of engineers and geologists to grasp.

In a discussion of this subject in "Mining and Metallurgy," Donald H. McLaughlin, professor of mining engineering in Harvard University and chairman of the committee on geophysical prospecting of the American Institute of Mining and Metallurgical Engineers, says:

"The use of geophysical methods by staff geologists, in my opinion, is bound to continue in those districts where the results are effective in reducing cost of finding ore and of maintaining reserves. In general, we can confidently expect wider application in the future with increasing realization of their value as standard parts of the geologist's technique. This development seems to me to be no more detrimental to the interests of the well tried organizations for geophysical exploration than the creating of strong geological departments was to the business of consulting geologists. The specialist in geophysical methods should realize, as do most mining geologists, that successful work in operating districts generally depends on thorough familiarity with conditions that are to be obtained only through long contact, and that the consultant must to an important degree depend on continued co-operation of members of the resident staff, if the best results are to be obtained from his services.

"The geophysicists have been handicapped in much of their work by a tendency on the part of mining men and even geologists to require them to show what they could do with their methods without being given any information concerning the rocks, structure and distribution of ore in the districts. The geophysicists themselves have perhaps been rather overconfident and possibly have welcomed such tests in many cases without realizing how severe or unfair the conditions were. This attitude is fortunately changing, and it is to be hoped that with the increasing use of geophysical methods by staff men better realization of their possibilities and limitations will be gained, and the specialist will be given greater opportunity to make his work effective."

SHEEPSKINS FOR DIAPHRAGMS

I often have wondered why sheepskin is used in making the diaphragms for gas meters. Can you tell me?—N. Y. D.

Sheepskin is used as a meter diaphragm material because it combines in its natural thickness the characteristics of softness, firmness, strength, long life, flexibility, tightness of texture and resistance to destructive agents in the gases better than any other known material.

HOW DEEP MAY DRILL GO?

Is it possible to say approximately how deep it will be possible to drill for oil? Is there any way of estimating how far beneath the surface oil may be found? In asking about the depth to which it may be possible for the drill to go I am thinking of the high temperatures that would be encountered rather than mechanical problems in the construction of tools of the required strength and weight.—D. W. Y.

The possibility of drilling wells 15,000 feet deep is a subject of serious discussion, according to John A. McCutchin, research observer for the American Petroleum Institute, who was assigned to take deep-well temperatures in Oklahoma under the direction of Dr. Charles N. Gould, former director of the Oklahoma Geological Survey. Mr. McCutchin points out that among the problems which may confront the oil man in the future and in which a knowledge of earth temperatures will play an important part is the question of how deep it will be possible to drill for oil. In some fields the oil companies are also making use of temperature studies for the purpose of improving the efficiency of repressuring and pumping operations.

WHY WAS IT CALLED THAT?

WEWOKA

The Wewoka, Oklahoma, oil pool, forerunner of the Seminole boom, was named after the town near which the field was developed. The word is derived from the Creek Indian "uewohkv" (pronounced wewo-ka), which is a combination of two words, "ue" and "wohkv." "Ue" means water, and "wohkv" means roaring or barking. So Wewoka literally means "roaring water."

In planning to drill a well to such a depth as 15,000 feet the probable temperature at the bottom of the well should be determined as accurately as possible in advance of drilling. In some areas where the rate of increase in temperature is 1° to about 35 or 40 feet in depth, the temperature at 15,000 feet would be so high that it would probably affect ordinary drilling equipment. However, Mr. McCutchin has found that in Oklahoma the general rule is that where the granite rock is buried under great depth of sedimentary formations, the increase in temperature with depth is not so great, and it may be possible to drill much deeper than any present wells without seriously affecting the drilling tools.

At the present time no one knows how far down oil may be expected to occur under favorable structural conditions, if oil-bearing formations are present at great depth. In many areas granite is found at comparatively shallow depth and in those areas the temperature problem would not be important for the driller since no one would expect to find oil after encountering granite. Since oil has been found at depths of 6,000 to 8,000 feet during the past few years, it is believed by many oil men that in the future deeper wells will be drilled in favorable areas by those who believe oil may be found at any depth where the formations and structural conditions are favorable. And it will be in these deep wells that the question of temperatures must be considered and equipment designed to stand this heat if the deep drilling is to succeed.

SHOOTING VS. BACK PRESSURE

Can you tell me what opinion is held by petroleum engineers as to the relative merits of back pressures and enlarging the hole by shooting as measures for increasing the recovery of oil?—N. T. E.

It is impossible to say what opinion is held by a majority of petroleum engineers on this point. It is safe to say though that enlargement of the hole by shooting is regarded by many as preferable to the use of back pressures as a means of increasing ultimate recovery. Lester C. Uren, associate professor of petroleum engineering in the University of California, in a paper presented before the American Institute of Mining and Metallurgical Engineers in 1925, advanced the theory that enlarging a well at the point where it penetrates the oil sand would be productive of good results. S. F. Shaw, consulting engineer of the Carter Oil Co., said in a paper presented before the petroleum division of the A.I.M.E. in 1930:

"The writer is of the opinion that the enlargement of the diameter of the well at the bottom would be far more beneficial in increasing the ultimate recovery than the use of back pressures. Shooting wells has the effect of enlarging the hole, and has given satisfactory results in the Mid-Continent Field. Observations made on several wells in the Seminole area indicated that the gas-oil ratio was lowered when production was increased by shooting the wells. Examples of reducing gas-oil ratios by shooting are given in the following table:

	Oil production, bbls. per day		Gas-oil ratios	
Well	Before shooting	After shooting	Before shooting	After shooting
A	335	677	1,320	853
B	454	671	850	675
C	368	606	1,290	881
D	382	854	1,923	1,518
E	687	602	1,264	1,530
F	788	1,475	600	444
G	395	724	973	698
H	732	1,969	548	654
I	171	379	970	900
J	181	228	2,250	2,450
K	306	497	2,580	1,591

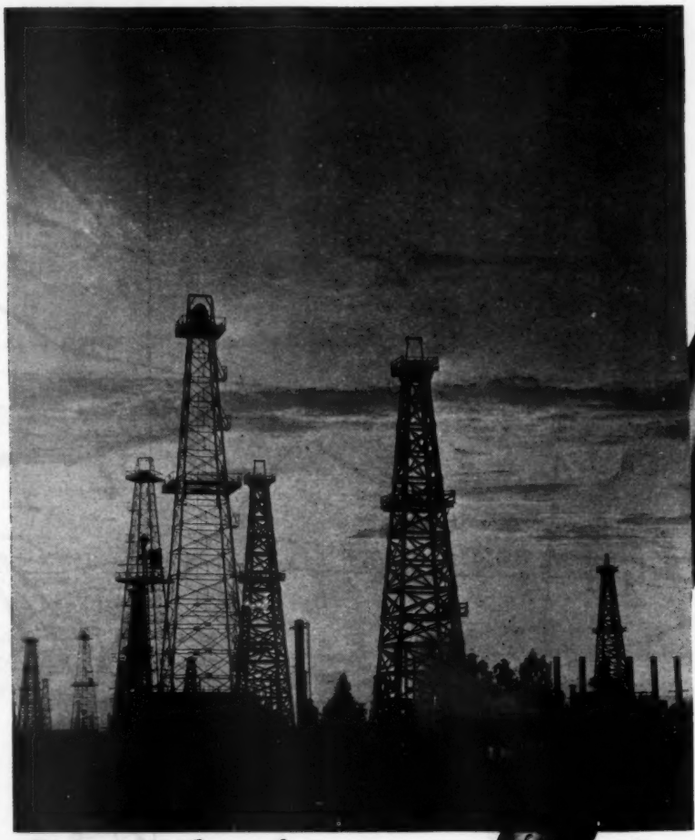
"In nearly every case there was a reduction in the gas-oil ratio after shooting the wells. In the cases where there was no reduction in the gas-oil ratio the tests were made at intervals too far apart, before and after the shooting, to give a fair comparison."

"PERMISSIBLE" EXPLOSIVES

In connection with the use of explosives, such as nitroglycerin and dynamite, I see the expression "permissible explosives" used sometimes. What is meant by permissible explosives?—S. F. E.

A "permissible" explosive is one a sample of which has passed certain tests prescribed by the U. S. Bureau of Mines to determine its safety for use in gaseous or dusty coal mines. It must pass a severe test for frictional impact and must have a comparatively small, cool flame of short duration. The conditions for use fixed by the Bureau of Mines require that the explosive be fired by nothing weaker than a No. 6 detonator; that it shall not be frozen when used; that the quantity used for a shot shall not exceed 1½ pounds, and that it be properly tamped with a noncombustible stemming material. These precautions reduce to a minimum the possibility of a mine explosion through ignition of coal dust or gas. Also, the physical characteristics of most permissibles are such that they are safer to handle and transport than most other commercial explosives, being less sensitive to blows, flames, friction and sparks. However, they are designed to explode and should be protected like all other explosives.

STRAIGHT FACTS.. the 19th of a series and the 4th advertisement on pumps



CLOUDS *that are fading away*

The storm may not be over but it is "lightening up in the West." While the ills of the industry are far from cured, the clouds overcasting the future are drifting away.

In the storm of depression, operators have learned many things. In the production branch of the industry they have learned that the perfect INTERCHANGEABILITY of Axelson Pumps and parts has worked remarkable economies for them.

They have learned that the supermaterials, painstaking workmanship and thoughtful service characteristic of the Axelson organization are factors that they COULD DEPEND ON through boom or depression.

There is an Axelson representative as near as your telephone.

Axelson Manufacturing Co.

P. O. Box 710, Vernon Station, Los Angeles

Tulsa New York City, 30 Church St. St. Louis

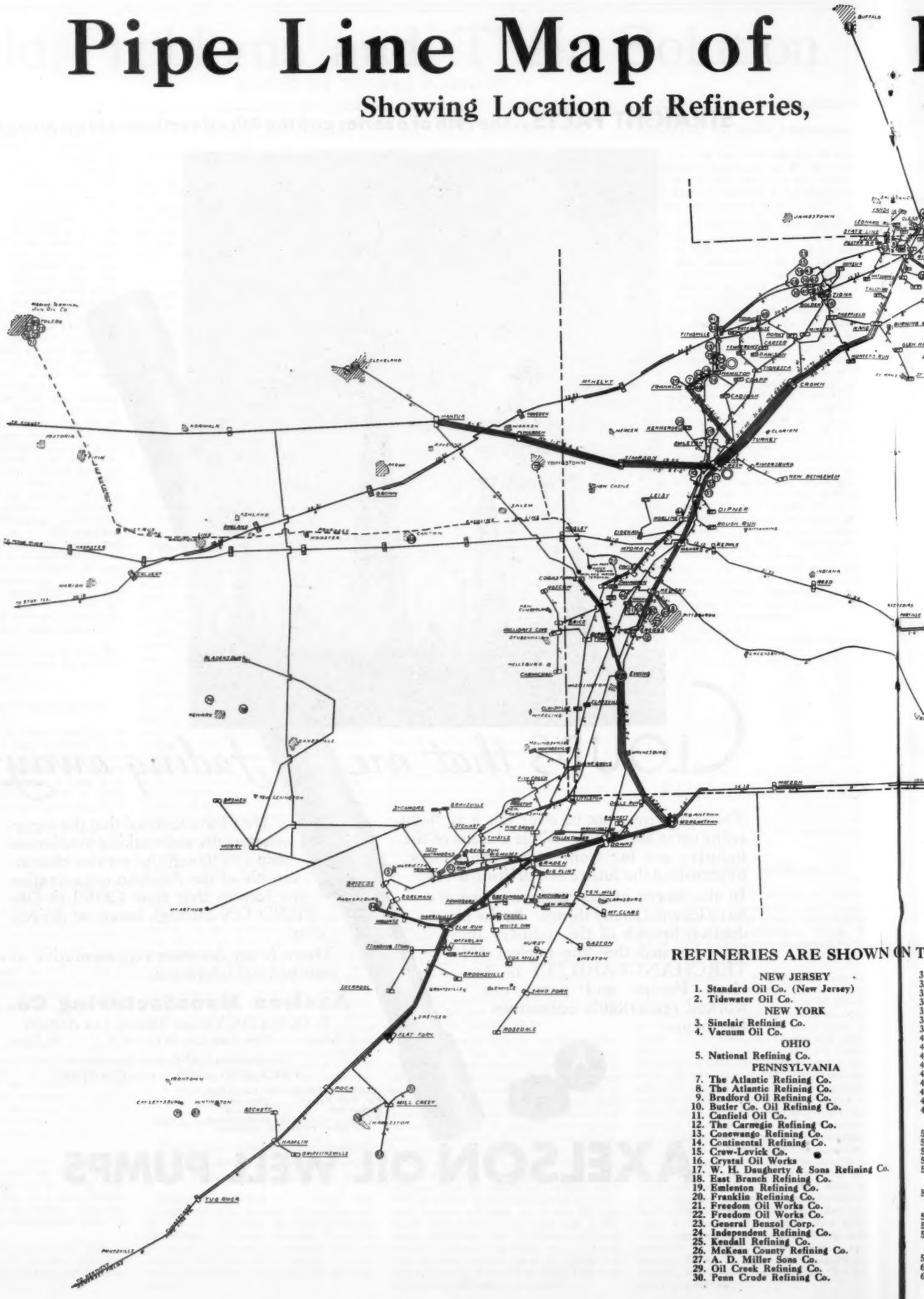
Mid-Continent and Eastern Distributors:
FRICK-REID SUPPLY CORPORATION

AXELSON PRODUCTS INCLUDE:
Oil Well Pumps Fittings
Sucker rods Pull rods
Valves Stuffing boxes
and other production equipment

AXELSON OIL WELL PUMPS

Pipe Line Map of

Showing Location of Refineries,



REFINERIES ARE SHOWN ON T

NEW JERSEY
1. Standard Oil Co. (New Jersey)
2. Tidewater Oil Co.

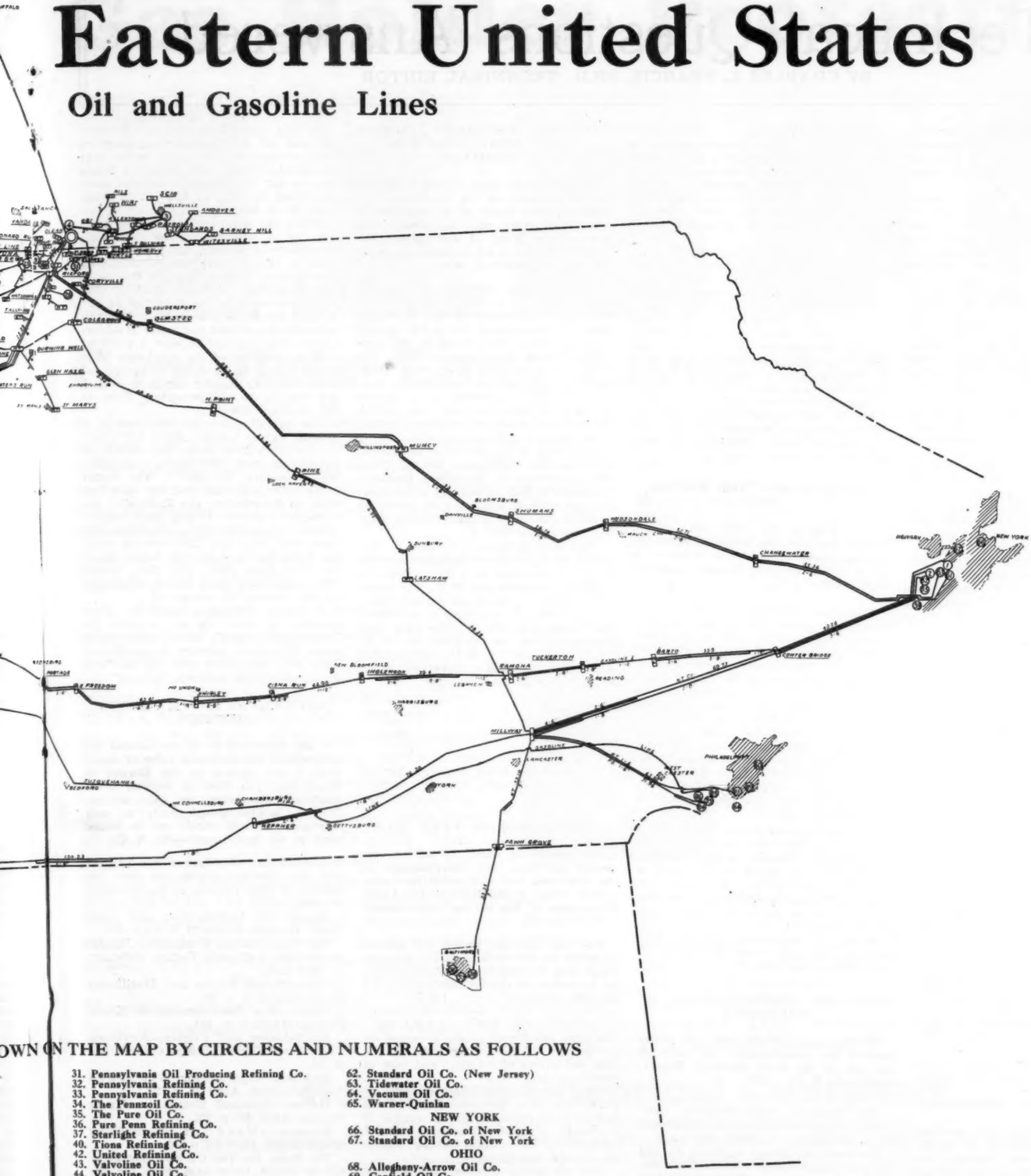
NEW YORK
3. Sinclair Refining Co.
4. Vacuum Oil Co.

OHIO
5. National Refining Co.

PENNSYLVANIA
7. The Atlantic Refining Co.
8. The Atlantic Refining Co.
9. Bradford Oil Refining Co.
10. Butler Co. Oil Refining Co.
11. Canfield Oil Co.
12. The Carnegie Refining Co.
13. Conewango Refining Co.
14. Continental Refining Co.
15. Crew-Levick Co.
16. Crystal Oil Works
17. W. H. Daugherty & Sons Refining Co.
18. East Branch Refining Co.
19. Emlenton Refining Co.
20. Franklin Refining Co.
21. Freedom Oil Works Co.
22. Freedom Oil Works Co.
23. General Benzol Corp.
24. Independent Refining Co.
25. Kendall Refining Co.
26. McKean County Refining Co.
27. A. D. Miller Sons Co.
29. Oil Creek Refining Co.
30. Penn Crude Refining Co.

Eastern United States

Oil and Gasoline Lines



OWN ON THE MAP BY CIRCLES AND NUMERALS AS FOLLOWS

31. Pennsylvania Oil Producing Refining Co.
32. Pennsylvania Refining Co.
33. Pennsylvania Refining Co.
34. The Pennzoil Co.
35. The Pure Oil Co.
36. Pure Penn Refining Co.
37. Starlight Refining Co.
40. Tiona Refining Co.
42. United Refining Co.
43. Valvoline Oil Co.
44. Valvoline Oil Co.
45. Viking Oil Corp.
46. Waverly Oil Works Co.
47. Waverly Oil Works Co.
48. Wolverine-Empire Refining Co.
49. Wolverine-Empire Refining Co.

WEST VIRGINIA

50. Chemical Carbide & Carbon Co.
51. Elk Refining Co.
52. Ohio Valley Refining Co.
53. The Pure Oil Co.
54. Standard Oil Co. (New Jersey)

KENTUCKY

55. Ashland Refining Co.

MARYLAND

56. Continental Oil Co.
57. Mexican Petroleum Corp.
58. Standard Oil Co. (New Jersey)

NEW JERSEY

59. Barber Asphalt Co.
60. Crew-Levick Co.
61. Gulf Refining Co.
62. Standard Oil Co. (New Jersey)
63. Tidewater Oil Co.
64. Vacuum Oil Co.
65. Warner-Quinlan

NEW YORK

66. Standard Oil Co. of New York
67. Standard Oil Co. of New York

OHIO

68. Allegheny-Arrow Oil Co.
69. Canfield Oil Co.
70. Craig Oil Co.
71. Gulf Refining Co.
72. National Refining Co.
73. Paragon Refining Co.
74. Pure Oil Co.
75. Rajah Oil Refining Co.
76. Standard Oil Co. (Ohio)
77. Standard Oil Co. (Ohio)
78. Stellar Refining Co.
79. Sun Oil Co.
80. Superior Oil Co.
88. Pure Oil Co.

PENNSYLVANIA

81. Atlantic Refining Co.
82. Gulf Refining Co.
83. Pure Oil Co.
84. Sinclair Refining Co.
85. Sun Oil Co.
86. The Texas Company.
89. Gulf Refining Co.

WEST VIRGINIA

87. Tri-State Refining Co.

Map prepared by Engineering Dept. of the Forest Oil Corp., Bradford, Pa. Data accumulated by the Bradford Transit Co., Bradford, Pa.

NOTE

In the compilation of this map acknowledgment is made of data obtained from publications of the U. S. Geological Survey, the U. S. Bureau of Mines, The Oil and Gas Journal, and valuable information furnished by officials of the various oil and pipe line companies.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

PETROLEUM NAPHTHAS FOR INSECTIDES

Can you give me any information about the preparation of insectide liquids, such as ———, which have a naphtha base?—R. J. S.

The preparations mentioned are special fractions, usually called close cuts, containing hydrocarbons of the naphtha group. These liquids evaporate rapidly without leaving a residue, have a high initial boiling point as compared with gasoline, and a low endpoint.

Frequently products of this sort contain small quantities of chemicals or drugs in solution. One sample was found to contain 2 per cent pyrethrum. Several petroleum products are extensively used in the preparation of spraying solutions and emulsions, most of these being relatively heavy oils.

These references may be of value:

Carpenter, J. A.—Progress of Naphthology, Special Products, Inst. Pet. Tech. J., April, 1930, p. 294.

De Ong, E. R.—Petroleum Oil as a Carrier for Insecticides, Ind. Eng. Chem., 20, 826 (1928).

Investigations on Oil Sprays, Washington Agr. Exp. Sta. Bull., 197 (1925).

HEAT PRODUCING CHEMICALS

I would like to ask a few questions about the heating mentioned in the article, "New Process for Cleaning Out Wells," which appeared in The Oil and Gas Journal July 9, 1931, page 17. How great a temperature can be obtained at the bottom of the hole using chemicals as the heating element? Could a temperature as high as 130° C. (266° F.) be reached and maintained for a few hours? Are there chemicals which could be used to heat with that do not generate gas?—C. E. J.

The claims of the patent for this process mention metallic carbide and hydrochloric acid. In the specification an example is given: "To an oil well containing water, commercial concentrated hydrochloric acid and granular calcium carbide are introduced at the rate of about 50 pounds each for each 10 feet of sand depth. . . . Next, about 5 pounds of sodium peroxide are added and within a few minutes a packer is set at about the level of the top of the oil sand. The reaction mixture is allowed to remain in the well for about two hours and is then bailed out, after which the same process may be repeated if necessary."

A very high temperature may be developed by the use of chemicals. A mixture containing powdered iron and sulphur will give a red heat; another powdered mixture of iron, magnesium, and aluminum will give a temperature high enough to melt iron. These must be set off by means of a spark. Mixtures of acids and alkalies give high temperatures, such as sulphuric acid and sodium hydroxide. Quick lime and water will also produce a high temperature. All of these temperatures will be higher than 130° C. These mixtures of themselves do not produce gas but when in contact with water gas may be formed.

INTERPRETING THE DOCTOR TEST

Just what is the color, etc., of the sample and the test solution when the sodium plumbite or doctor solution is mixed with a properly finished gasoline? —W. C. F.

There are two reactions which may take place when the sodium plumbite solution is agitated with a petroleum product, as in the doctor test, if the product is not fully refined. There may be a precipitate formed or the lighter liquid may become colored. A heavy black precipitate indicates the presence of hydrogen sulphide. A brown to orange precipitate is formed if the sulphur is present as mercaptans. Occasionally a sample will tend to become cloudy to opalescent after shaking with the doctor solution but with rapid development of color; this reaction indicates the presence of free sulphur.

The usual interpretation of this test is expressed as sweet and sour or positive and negative. The test is positive when a precipitate is formed or the liquid is colored orange to brown. A negative test is the opposite; the light liquid remains clear or with no more color than a yellowish tinge.

Directions for making the test were given on this page, issues of October 16 and October 30, 1930.

ROAD OIL SPECIFICATIONS OF OKLAHOMA

If they are available will you please publish the specifications for road oil as used by the State Highway Department?—E. Y. C.

The Oklahoma State Highway Commission supplies specifications mentioned below, revised as of March, 1931.

The road oil, except in Grade C, and the penetration residue derived therefrom shall be homogeneous. The road oil shall be free from sediment and water and shall not foam when heated to 120° C. When tested according to the standard methods set forth in U.S.D.A. Bulletin 1216, it shall meet the requirements of the grade specified.

	A-1	A-2	A-3	B-1	B-2	B-3	C
Specific gravity at 60° F.	.95-.985	.96-.985	.96-.985	.96-.985	.95-.985	.95-.985	.93-1.0
Gravity A.P.I.*	17.5-12.2	15.9-12.2	15.9-12.2	17.5-12.2	17.5-12.2	17.5-12.2	20.6-10.0
Flashpoint (open cup) not less than, ° C.	180	180	190	50	50	65	80
Per cent of bitumen soluble in carbon tetrachloride, not less than	99.6	99.6	99.6	99.6	99.6	99.6	...
Specific viscosity (Engler) 50° C. (122° F.)	15-40	40-75	75-150	8-20	20-40	40-100	10-50
Saybolt Furol*	56-140	140-280	280-662	30-75	75-140	140-375	37-187
Loss on heating 50 grams 5 hours at 163° C. (325° F.)	0-1%	0-1%	0-3%	15-30%	10-20%	10-20%	0-8%
Residue of 100 penetration	55-65	65-75	70-85	50-60	60-70	70-80	55-80
Ductility at 25° C. (77° F.) not less than, cm.	60	60	50	100	100	100	..
Ductility at 4° C. not less than, cm.	..	4	4	4	4	4	..

*The approximate equivalents have been inserted.

The specific viscosity on Grade G oil to any given project shall fall within a range of 15 points, as designated by the engineer.

THERMAL EXPANSION CO-EFFICIENT HEAVY OILS AND ASPHALTS

Would you be kind enough to give us the information on the expansion of a Mid-Continent crude oil as compared to an asphalt crude such as found in the Kern River Field of California? We would also like to get an expansion table for liquid asphalt?—J. W. F.

The expansion coefficient to be used when correcting a volume of oil to the standard temperature of 60° F. is applied on the basis of the A.P.I. gravity of the product. This would be the same irrespective of the source of the oil. The heavy oil of the Kern River Field, 15/16 A.P.I. gravity, would have the same thermal expansion coefficient as a similar oil from the Mid-Continent, viz., 0.0004. See National Standard Petroleum Tables, U. S. Bureau of Standards, Cir. 154.

A bulletin of the Bureau of Standards, Miscellaneous Publication No. 97, Thermal Properties of Petroleum Products, November 9, 1929, contains a table covering the thermal expansion of petroleum asphalts and fluxes at temperatures ranging from 0° to 500° F.

This table is designated Table 1. The values of V_m/V given represent volumes at 60° F. occupied by a unit volume at indicated temperatures, t° F. For example, 1 gallon of petroleum asphalt measured at 350° F. will have a volume of 0.9031 gallon at 60° F. The data were calculated from the equation: $V_t = V_m [1 + A (t-60) + B (t-60)^2]$ using $A = 0.000341$ and $B = 0.0000001$, which is equivalent to the following:

Temperature range (°F.)	Mean coefficient of expansion
60 to 150	0.00035
60 to 250	0.00036
60 to 350	0.00037
60 to 450	0.00038

The extensive tables given in Circular 154 cover oils ranging from 10° to 100° A.P.I.

COMPOSITION OF FUEL OILS

We require to know, in solving our special problems, full specifications of the following fuel oils which are being quoted weekly on the Refinery and Crude Prices page of The Oil and Gas Journal. —I. D.

The fuel oils are graded for market purposes on the basis of A.P.I. gravity, which may be converted to specific gravity by means of the formula:

$$\text{Specific gravity} = \frac{141.5}{131.5 + \text{A.P.I. deg}}$$

The large number of grades is caused by the variety of petroleums refined, the type and extent of refining, and care in handling.

Close specifications are seldom required for these products but when a fuel oil is required of special quality it is always advisable to make a careful examination of samples falling within the gravity stipulation.

Fuel oils falling between 24-30 gravity may flash anywhere from 110° to 500° F., depending upon refining methods. The low limit of 110° is that so frequently set by law as a safety measure. The Furol viscosity varies over a wide range also, and pourpoints may fall between 10° and 90° F. Viscosity and pour are often covered by the specification that the oil shall flow freely through a 2-inch pipe at 60° F. Numerous samples show the Furol viscosity at 122° F. to range from 20 to 500.

When the purchaser desires the product for a special purpose additional specifications become important. Navy fuel oil (U. S. Navy) specifications do not mention gravity but for Grades A and B require a minimum flash of 150° F., Furol viscosity for A is 100 at 77° F. and for B is 100 at 122° F. The quantity of sediment and water is seldom permitted to amount to over 2 per cent and the majority of the purchasers stipulated a total of 1 per cent with a graded reduction in price for anything over 1 per cent up to the percentage fixed as the rejection quantity.

The gas oils may be classified in a general way as follows: Flash 110°/200° F.; initial boiling point, 200°/400°; final boiling point, 600°/750°; pour, 10°/80°; viscosity, 50°/200°. The terms straw color and high and low cold test serve to differentiate the 32-36 oils; for example, a gas oil having these tests—gravity 34, initial 244°, maximum 800, flash 150°, and fire 220°—would equal the following on a gravity basis: Gravity 33.8, flash 250°, fire 294°, initial 500°, color very dark brown. The color at once rejects the second oil.

A similar discussion might be given covering the other oils but as above indicated these details are of little value when the whole industry is considered. They will vary from field to field and from refinery to refinery.

ARTICLES ON KNOCK TESTING METHODS

I am interested as to the method for determining the antiknock value of motor fuel. I am advised by the Bureau of Mines that you have at various times published discussions on this subject. Will you be kind enough to give me such references as will enable me to locate these in the back issues?—W. A. C.

Articles that have appeared in The Oil and Gas Journal during the first six months of 1931 relating to knock-testing include:

Stacey—Oil Consumption and Antiknock Ratings, February 5, page 26.

MacCoull—Obtain Comparable Results in Gasoline Antiknock Testing, February 5, page 124.

Weld—Knock Rating and Distillation Range, March 5, p. 98.

Edgar—New Developments in Knock Rating, March 5, p. 101.

Bartholomew and Fricker—Antiknock Fuels and Engine Design, March 26, p. 38.

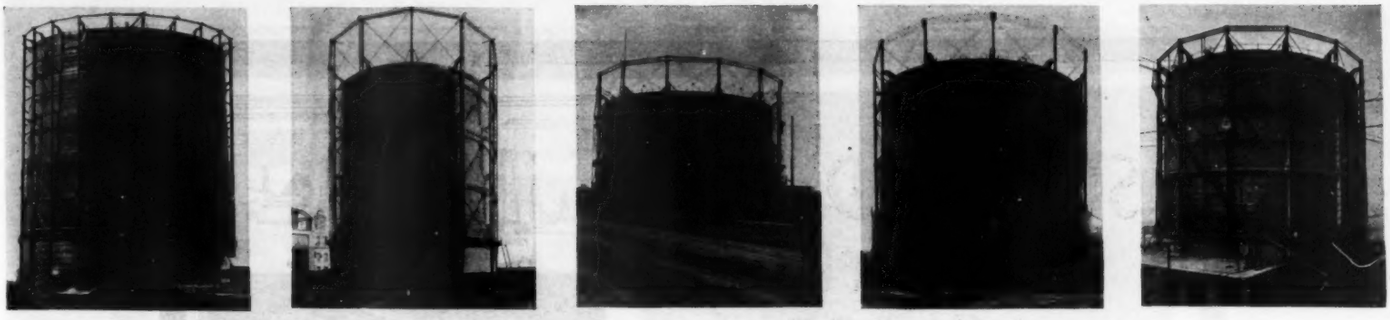
Dickinson—Approaching Standard Antiknock Test, April 16, p. 24.

Hubner—Standard Method for Knock Testing, April 30, p. 22.

Swanson—Need for Standardizing Knock Tests, June 18, p. 46.

The index for The Oil and Gas Journal is issued twice each year for the first half and last half of the year. The last printed appeared in the issue of August 6. The index for the last six months of 1930 was published in the February 12, 1931, issue.

Gas Holder Protection

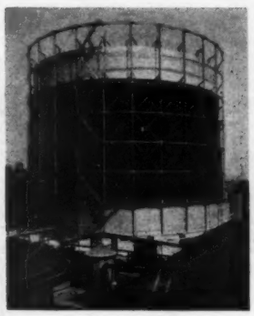


Complete–Long Lived–Economical

A great many companies have been using NO-OX-ID on their gas holders for years and are continuing to use it. Many additional companies are coming to NO-OX-ID, as they see its excellent results. This invites attention from all companies who have been paying excessively for short-lived protection.

Compare the material you are now using with these facts regarding NO-OX-ID.

Mechanical and Chemical



In mechanical protection, NO-OX-ID penetrates into all irregularities in the surface of the metal. It adheres closely and never dries out completely under the surface film. NO-OX-ID does not blister, crack or alligator, the flexibility of the material causing it to conform constantly to the surface regardless of expansion and contraction. Climate, salt air and industrial gases have no effect on NO-OX-ID. Chemical inhibitors of rust are carried in NO-OX-ID. Their action is to quench the tendency of the surface of the metal to rusting and pitting. With NO-OX-ID there is no subsurface corrosion. This combination of perfect mechanical and chemical protection is responsible for the remarkable results obtained. *Yet NO-OX-ID is inexpensive.*

Exterior of Holders

The entire outside of the holder is coated with one of three consistencies of NO-OX-ID depending upon conditions. Dome, walks, ladders and guide frames are protected with NO-OX-ID Filler Red, over which paint can be applied for color scheme. This applies to both new and reconditioning work, but reconditioned metal must, of course, be gone over before application and all blisters and loose material removed. (On new work, a NO-OX-ID Mill Coating is supplied to assure freedom from rust during shipment and storage).

Interior of Holders

In storing dehydrated or natural gas, the inside of holders should be treated with NO-OX-ID during erection. Suitable consistency is supplied for brush application.

Lifts and Water Seals

NO-OX-ID Water Seal is a light consistency. It floats on the water and the lifts are coated by dipping. Upper lifts should be brushed with heavier consistency of NO-OX-ID because of infrequent dipping.

Auxiliary Equipment

NO-OX-ID should be used also on relief holders, tanks, washers, scrubbers, purifying boxes, meters subject to corrosion and condenser stands.

Desirable from Every Viewpoint

If you are not familiar with NO-OX-ID in this service, don't attempt to visualize its performance by comparison with any other materials. Prepare to learn of an attainment in thoroughness, longevity and economy of protection entirely new to you and desirable from every viewpoint. Data, references and estimates will be submitted gladly. Investigate!

Dearborn Chemical Company

"A House of Chemical Engineers" In Its Forty-fourth Year of Service to Industry

310 S. Michigan Ave., Chicago 807 Mateo St., Los Angeles 205 E. 42nd St., New York

Canadian Offices and Factory: 2454-2464 Dundas St., West, Toronto

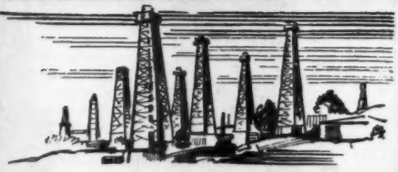
NO-OX-ID

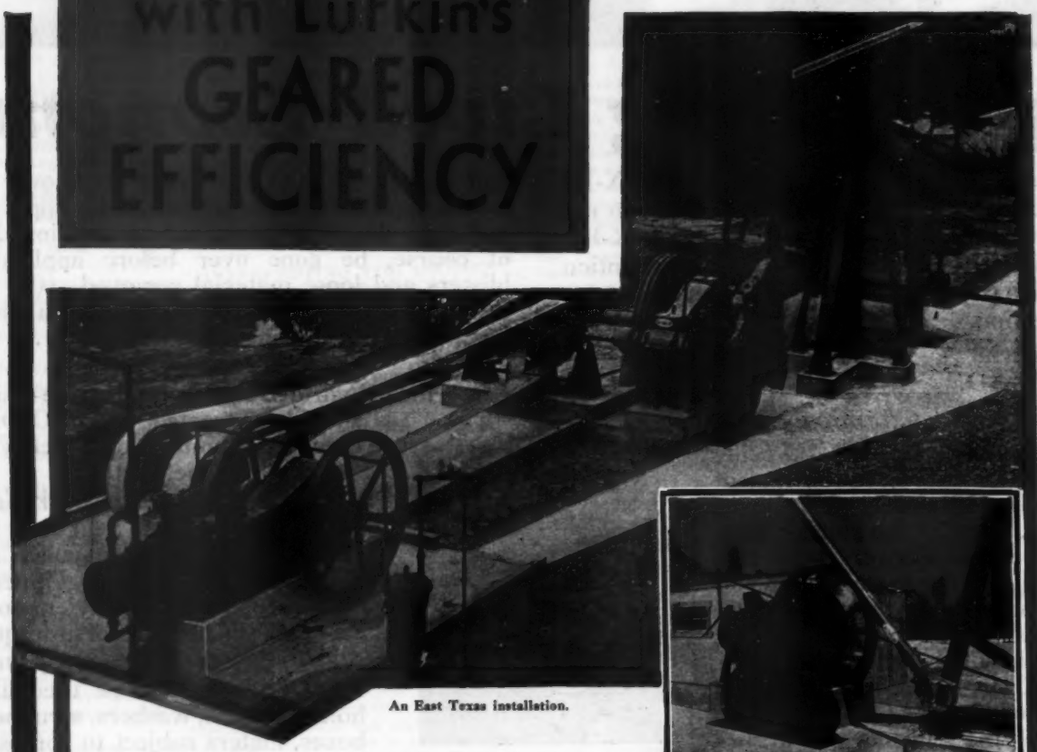
IRON + OX = RUST

TRADE MARK

The Original Rust Preventive

A
STANDARD RIG
with Lufkin's
GEARED
EFFICIENCY

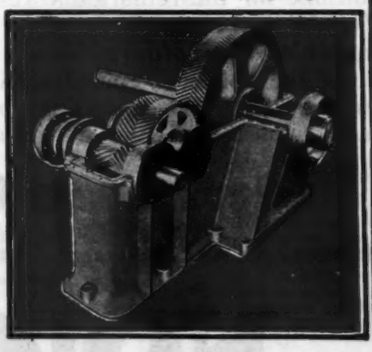




An East Texas installation.

Crank "thrown-out" while servicing well.

Gear cover removed, showing type gearing.



The Lufkin Herringbone Geared Rig Front . . . combining operating efficiency with the general adaptability of the "Standard Rig" is a distinct Lufkin achievement. This new unit assembly has been designed to operate with any type prime mover; any type drive and any combination of "hook-up".

A new type of counter balanced crank (Trout-Croom Patent, which may be "thrown out" while servicing the well) is standard equipment on the new unit.

Bulletin 81, containing full information, specifications and blue print setting plans will be gladly mailed to interested oil men anywhere upon request.

Write for your copy today!

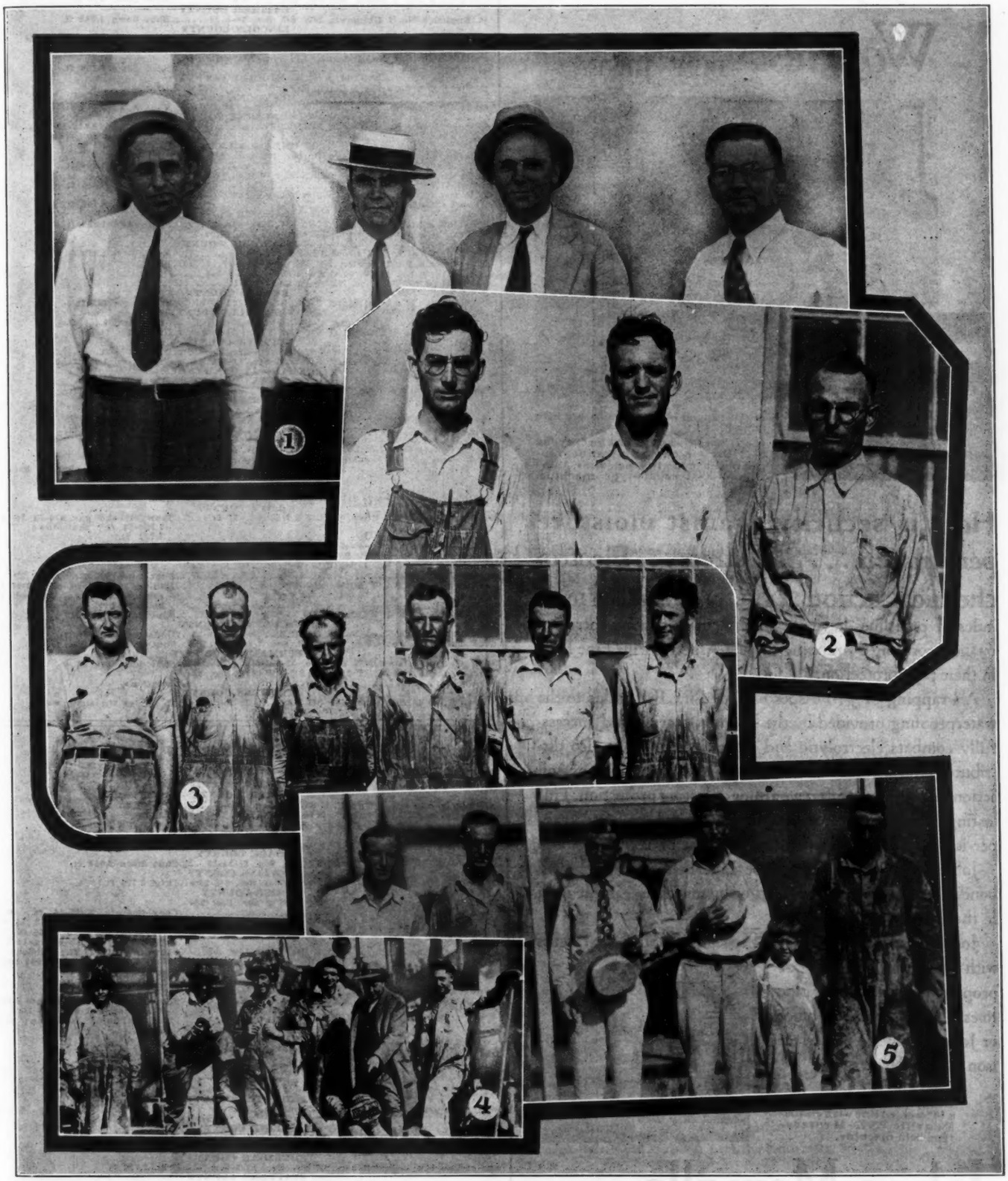
LUFKIN FOUNDRY & MACHINE COMPANY, LUFKIN, TEXAS

Branches located at

Houston, Tulsa, Los Angeles, New York, Odessa, Seminole, Eldorado
East Texas Headquarters—Henderson, Tex., Crim Crest Hill, P.O. Box 216

LUFKIN UNITS

Seen Here and There By the Journal's Cameras



1—L. C. Hightower, sales manager; J. C. Moore, salesman; Oscar Cosby, credit manager; and H. T. Epps, office manager; Spengler Tool Co., Oklahoma City, Okla. 2—Jess Overstreet, meter man; J. R. Wooden, chemist; and B. C. Sharrett, superintendent; Sinclair Oil & Gas Co., Garber, Okla. 3—E. L. Lusk, engineer, booster plant; Walker Reeves, chief engineer; Harlan Sherrell, truck driver; Frank Brandon, gang pusher; Harry F. Williams, loading rack foreman; and T. R. Shoemaker, roustabout; Sinclair Oil & Gas Co., Garber, Okla. 4—Sun Oil Company's drilling crew No. 3 Bender, Humble Dome, Texas. Left to right: O. F. Runnels, driller; L. L. Evans, derrick man; H. H. Schaltz, fireman; M. E. Hardy, helper; G. A. Humason, inventor, and C. A. Mittelstebt, helper. 5—F. Phenix, C. A. Jordon, I. B. Cate, Jack McClanahan, and C. S. Good, Halliburton Oil Well Cementing Co., Willow Springs, Tex.

Bury your Corrosion Worries– WITH THE PIPE LINE

Mill-wrapped pipe being lowered into trench.

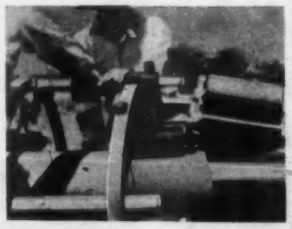
(*Left*) Five to ten thousand feet per day of 24" Dresser coupled line can be wrapped in the field with the Johns-Manville W-K-M saddle-type machine.

Here is security against moisture penetration . . . Soil stress . . . Electro-chemical action . . . Owners of more than 10,000 miles of pipe lines have obtained security against corrosion by incorporating a wrapping of J-M Asbestos Pipe Line Felts in their pipe protection.

A wrapping of J-M Asbestos Pipe Line Felts adds to the waterproofing provided by the bitumen coating and successfully combats electrolytic and galvanic actions. It also distributes clod pressure and takes the sheer and pull of soil action, providing an effective armor of lasting protection. This lasting protection afforded by the J-M Pipe Line Felt Wrapper is obtained at a fraction of the cost of reconditioning.

Johns-Manville Asbestos Pipe Line Felts can be applied bonded or unbonded—by hand or by machine—in the mill, in the yard or in the field.

Johns-Manville engineers are especially qualified to discuss with you the economy of properly protecting your pipe lines. Address our local office or Johns-Manville, 292 Madison Ave., New York.



Wrapping over hot coating on a 10" welded line with Johns-Manville W-K-M rotary-type field machine.

Johns-Manville JM Pipe Line Felts

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

Arresmith & Walker's No. 1 Grigsby, SE NE SE Sec. 1-6-15w ..... Completed 88-96 ft.; 2 bbls. oil.
Christian's No. 1 Jones, NE SE, Sec. 8-7-18w ..... Shut down 820 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE, Sec. 16-6-19 ..... Shut down 1,542 ft.

LINCOLN COUNTY

Mote et al's No. 1 School Land, NW cor., Sec. 36-17-5 ... Rigging up standard tools.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 ..... Shut down 5,733 ft.

MURRAY COUNTY

Capitol Prod. Co.'s No. 1 Cutchall, SE NE Sec. 6-1-2 .... Drlg. 600 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19 ... Shut down 1,011 ft.

OKFUSKEE COUNTY

Shepard et al's No. 1 Nevens, SE NW SW, Sec. 3-12-10 ... Shut down 2,638-90 ft.; Wilcox sand; hole full water.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor., Sec. 21-11-3w ..... Shut down 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w ..... Shut down 5,515 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE NW SE, Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW, Sec. 6-20-5 ..... Shut down 1,950 ft.
Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5 .... Rig.

PITTSBURG COUNTY

Tape Oil Co.'s No 1 Fulton, SE, Sec. 34-7-14 ..... Shut down 1,070 ft.
J. Morrison's No. 1 Fowler, NE SE, Sec. 12-7-17 ..... Rig.
C. Kennedy's No. 1 Travis, C SW NE, Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor., Sec. 14-8-14 ..... Rig.

ROGERS COUNTY

Braman Oil Co.'s No. 1 Mare, C SW SE, Sec. 33-19-17 .... Shut down 438 ft.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW, Sec. 23-12-24w ..... Shut down 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE, Sec 4-11-26w ..... Drlg. 3,240 ft.

WICHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor., Sec. 29-8-19w. Drlg. 2,279 ft.
Burns & Prince's No. 1 Deck, SW cor., Sec. 21-8-18 ..... Shut down 1,050 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW, Sec. 11-1-1E. Shut down 4,750 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE SE, Sec. 18-3s-10 ..... Shut down 1,530 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW, Sec. 7-7-10. T. D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor., Sec. 35-6s-9 ..... T. D. 740 ft.; plugged back to 450-80 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE, Sec. 18-4s-8w ..... Location.

LOVE COUNTY

Autrey et al's No. 2 Cross, CWL SE NE, Sec. 27-6s-2 ..... Show oil and gas 970-72 ft. and 1,224-34 ft.; shut down; T. D. 1,634 ft.

MARSHALL COUNTY

Dixson's No. 1 McDuffel, SW SE Sec. 3-7s-6 ..... Drlg. 466 ft.
Taliaferro et al's No. 1 fee, NW SE SE NW, Sec. 34-5s-5 ..... Shut down 580 ft.
McCrory et al's No. 1 Little, NW SW, Sec. 30-7s-6 ..... Bailing 10 bbls. of oil 495-97 ft.; recemented csg.; pumped 110 bbls. 20 hrs.
D. H. Curry's No. 1 Ward, NE SE SW, Sec. 15-5s-6 ..... Shut down 2,510 ft.

McCURTAIN COUNTY

The Oil Journal's No. 1 Parks, C NE SW, Sec. 17-6s-23 .. Underreaming 700 ft.
Stewart's No 1 Patterson, C SE SE, Sec. 7-6s-24 ..... Shut down 975 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE, Sec. 32-2s-15 ..... Shut down 840 ft.
Whitehead et al's No. 1 Messer, SE SW SW, Sec. 35-3s-18 ..... Location.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE, Sec. 15-3s-5w ..... T. D. 989 ft.; show water.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 35)

MORRIS COUNTY

Allender et al's No. 1 Wycoff, C SW SE Sec. 5-17-7 ..... Shut down 105 ft.
Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7.. Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9 ... Shut down 2,625 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Shut down 2,058 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor. Sec. 3-3-35w.. Drlg. 3,705 ft.

RICE COUNTY

Detrick & Langston's No. 1 Purcell, NW cor. Sec. 32-19-9w ..... Conglomerate 3,335-46 ft.; show oil and water; T. D. 3,375 ft.; plugging back to 3,365-80 ft.; filled 400 ft. with oil in 14 hrs.
Cress et al's No. 1 Sharp, SE NE Sec. 13-20-10w ..... Show oil 3,107-15 ft.; Siliceous 3,-330-36 ft.; estimated 1,500 bbls.; shut in.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w ..... Show of oil in Conglomerate 3,835-80 ft.; plugged back to 3,825-40 ft.; estimated 150 bbls.; shut down.

RUSSELL COUNTY

Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w ..... Shut down 3,374 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w .... Show oil 3,090-94 ft.; shut down 3,504 ft.; plugging back to 3,-189 ft.

SEDGWICK COUNTY

Magnolia's No. 1 McLaughlin, NW cor. Sec. 31-28-1w .... Drlg. 3,705 ft.; 2,000,000 ft. gas at 3,548-64 ft.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w ..... Fishing 2,710 ft.

SHERIDAN COUNTY

Fio et al's No. 1 Shoemaker, SE SW Sec. 27-7-26w .... Drlg. 2,720 ft.

STAFFORD COUNTY

Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE Sec. 11-24-13w ..... Shut down 2,900 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE Sec. 19-32-39w .. Shut down 5,521 ft.

SUMNER COUNTY

Tighe et al's No. 1 Thieson, C NW SE SE Sec. 32-34-2 .. Drlg. 3,200 ft.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW Sec. 6-34-2 ..... Drlg. 1,652 ft.
Spencer et al's No. 1 Porter, NE SW Sec. 12-33-4w ..... Underreaming 3,240 ft.
Otstot et al's No. 1 Marlow, C SE NW SE Sec. 23-33-3w.. Fishing 4,150 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3 .... Shut down 1,720 ft.

CONSTANT care and unceasing vigilance in manufacture explain why J & L Seamless Pipe holds its enviable place in the estimation of pipe users. Five men out of every six in the Seamless Tube department make the pipe—the sixth man inspects it. He's on our payroll, but he works for you.

One of the many inspections is the checking of thread taper. With this taper right, both on pipe and in couplings, strings of pipe make up easier and quicker. The coupling covers all the threads. It never goes on too easily, yet never needs forcing. Every pipe thread has full bearing with the corresponding thread on the coupling. Tight joints are assured, and every portion of the thread does its full share in transmitting pull, and resisting mechanical strains. Couplings can be backed off easily and used again, for the threads are not rolled. They stay sharp and accurate.

CASING DRILL PIPE · TUBING LINE PIPE · J&L PIPE · SEAMLESS · WELDED

Critical J & L inspectors make enthusiastic users. They also make the J & L mark on Seamless the stamp of uniform quality, dependable service, and long-time satisfaction.

JONES & LAUGHLIN STEEL CORPORATION

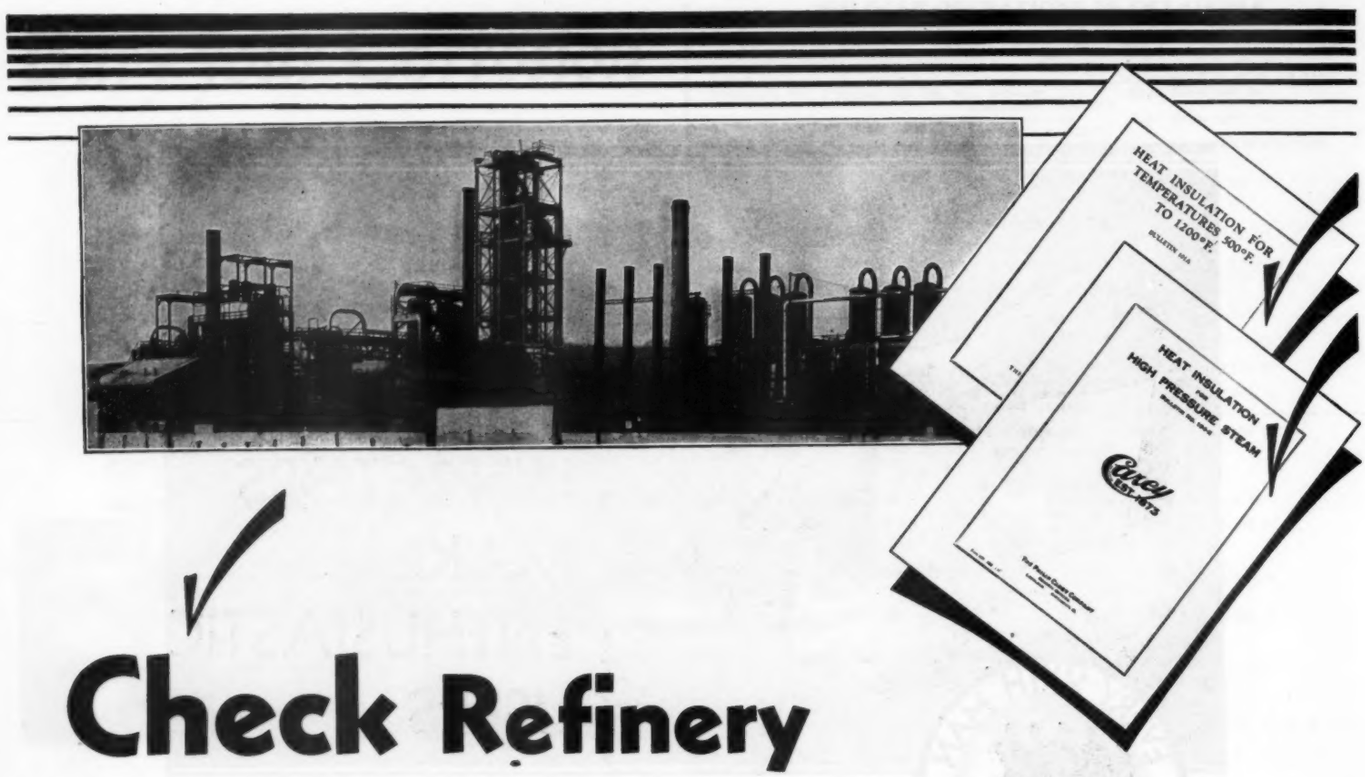
AMERICAN IRON AND STEEL WORKS

JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

Manufacturers of Seamless and Welded Casing, Tubing, Drill Pipe and Line Pipe, and Welded Steam, Gas and Water Pipe in both Black and Galvanized

J&L STEEL

Also makers of Bars, Shapes and Plates, Reinforcing Bars, Cold Finished Steel, Junior Beams, Steel Piling, Fabricated Structural Work, Steel Barges, Wire Products and Tin Mill Products



Check Refinery Insulation by these Bulletins

WHAT type heat insulation should be used for a given steam or still temperature? 85% Magnesia, Asbestos Cellular, Hi-Temp—all have a definite place, but where can you get impartial information, backed by scientific data? Carey bulletins 104X and 101A give the answers, clearly and concisely.

Every engineer who designs or operates oil refineries needs these bulletins. Bulletin 104X covers temperatures up to 600°F.; 101A provides data on temperatures up to 1200°F. The Carey line of heat insulation is complete, therefore Carey advice is unbiased. Carey distributors carry stocks in all large centers and can give immediate service on any required insulation, including application of the material if desired.

Your files should contain copies of Carey bulletins 104X and 101A; a request will bring them by return mail.

THE PHILIP CAREY COMPANY :: Lockland, Cincinnati, Ohio

Branches in Principal Cities

BUILT-UP ROOFS
ASPHALT PRODUCTS
ELASTITE EXPANSION JOINT
WATERPROOFINGS
ROOF PAINTS

Carey PRODUCTS

HEAT INSULATIONS
ASBESTOS MATERIALS
CAREYSTONE CORRUGATED SIDING
ASFALTSLATE SHINGLES
BUILDING PAPERS

571

GULF COAST FIELDS AND WILDCATS

(Continued from Page 38)

Sun Oil Co.'s No. 2 Winfree, W. D. Smith Sur., 50 ft. E of SW line and 150 ft. N of S line of tract.....Drlg. rock 4,051 ft.
Sun Oil Co.'s No. 11 Wilburn, Henry Griffith League, 550 ft. W of No. 5 and 50 ft. from N line of tract....Rigging up.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease.....Set 46¼ ft. 3-in. screen 5,753 ft.; tested salt water; to abandon.
The Texas Company's No. 7 Wilburn, Henry Griffith League, 116 ft. S of Humphreys Corp.'s No. 8-H Kirby .....Drlg. hard sand rock 1,182 ft.
The Texas Company's No. 2 Lawrence, Henry Griffith League, 240 ft. from E line and 41½ ft. from N and S lines of strip.....Spudded.

HUMBLE—HARRIS COUNTY

Southern Coastal Oil Co.'s No. 3 Perkins, John Jones Sur., 150 ft. N of No. 2 .....Derrick.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur.....Reaming 1,046 ft.
The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2....Location.

HANKAMER—LIBERTY COUNTY

Gulf Production Co.'s No. 5 Boyt (D.D.), H.&T.C. Sur. No. 22, 3,098 ft. from E line and 2,502 ft. from S line of tract.....Rig up to deepen 2,791 ft.

HULL—LIBERTY COUNTY

Wensedan Oil Co.'s No. 2 Palmer, Chas. Underton Sur. ..Drlg. shale 1,926 ft.
Sun Oil Co.'s No. 10 Carr.....Rig up to deepen 515 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 33 Taylor, James Hamilton Sur., 300 ft. E of No. 32.....Rig.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 20 Cade, N. Fitzsimmons Sur., 161 ft. W of No. 15 and 146 ft. SW of No. 17.....No report.
Yount Lee Oil Co.'s No. 22 Cade, N. Fitzsimmons Sur., 125 ft. S of No. 21.....No report.

DAMON MOUND—BRAZORIA COUNTY

Layne et al's No. 8 Wisdom, 155 ft. from NW line and 150 ft. from NE line, Lot 52, Blk. D, Wisdom Subd., A. Darst Sur. .....No report.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 30 Moore, Mark Smith Sur., 400 ft. N and 600 ft. W of No. 29.....Rig.

ORANGE—ORANGE COUNTY

Jefferson Prod. Co.'s No. 1 Bland.....Sandy shale 2,980 ft; drill stem stuck.

LOCKWOOD—FORT BEND PARISH

Cullen & West and Gulf Prod. Co.'s No. 3-A Lockwood & Sharp, J. Rabb Sur., 600 ft. E of No. 2-A..Spudded.
Cullen & West and Gulf Prod. Co.'s No. 4-A Lockwood & Sharp, J. Rabb Sur., 550 ft. W of No. 2-A .....Derrick.
Cullen & West and Gulf Prod. Co.'s No. 2 H. P. Lockwood, J. Rabb Sur., 300 ft. N and 900 ft. W out of SW cor. 383-acre tract .....Location.
Cullen & West and Gulf Prod. Co.'s No. 2 A. P. George, J. Rabb Sur., 300 ft. S and 905 ft. E out of NW cor. 200-acre tract .....Cored sand showing oil 3,603-13 ft.; running csg.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 6 Lost Lake, 2,381 ft. W and 289 ft. S of No. 5 in Lost Lake.....Rigging.

NASH—FORT BEND COUNTY

Harrison & Abercrombie's No. 15 Nash, Thomas Aisbury S League, 450 ft. E and 75 ft. S of Rycade Oil Corp.'s No. 13 Nash.....No report.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Humble Oil & Ref. Co.'s No. 8 Sterling, James McFaddin Sur., 150 ft. from N line and 1,650 ft. from E line of 512-acre tract.....Fishing 3,772 ft.

REFUGIO—REFUGIO COUNTY

Larco Gas Petroleum Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2...**Derrick.**
Mission Drilling Co.'s No. 1 O'Brien (W.O.), SW cor. 1½-acre tract, Refugio Town Tract.....T.D. 6,685 ft.; plugged to 6,300 ft. and drilled back to 6,405 ft.; comp. dry gas well 1,850 lbs. **pressure.**
Moody-Seagraves Prod. Co.'s No. 4 O'Connor, Refugio Town Tract, 150 ft. from N line and 1,282 ft. from W line of 60-acre tract .....T.D. 6,477 ft.; cutting and pulling liner 6,456 ft.
L. L. Smith's No. 1 L. M. Rogers (W.O.), C of Blk. 87, Refugio Townsite .....T.D. 6,457 ft; cmtd. 4½-in. csg. 5,300 ft.; set whipstock; standing.
United Prod. Corp.'s No. 6 O'Brien, 150 ft. from S line of tract, 350 ft. W of No. 3.....Oil sand 6,438-51 ft; twisted off joint drill stem; S.D.; waiting orders.
United Prod. Corp.'s No. 4 M. F. Lambert, Wm. Hews and L. Brown Sur., 2,514.7 ft. NE along NW line from SE cor. lease and 330 ft. NW at right angles...Sand and shale showing oil 5,814-34 ft.; to make drill stem test.

SOUTH LOUISIANA FIELDS
LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 5-A Farquahar, 105 ft. S and 110 ft. E of NW cor. SW NE, Sec. 8-10s-9w.....Drlg. hard shale 6,455 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w.....Drlg. shale 7,104 ft.

EDGERLY—CALCASIEU PARISH

Pelican Natural Gas Co.'s (Rex) No. 3 Prairie Narroni, Sec. 21-9s-11w, 125 ft. from S line and 50 ft. from W line of tract.....Drlg. salt and lime 4,618 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 26 Watkins, 1,199 ft. N and 1,843 ft. W of SE cor. of Sec. 13-12s-10w.....Derrick.
R. E. Seiss' No. 2 J. M. Vincent.....T.D. in rock 2,402 ft.; cemented 6⅝-in. casing 2,004 ft.
Calcasieu Oil Co.'s No. 3 Landry, Sec. 13-12s-10w, 139 ft. from N line of 11-acre tract and 300 ft. E of No. 1..Drlg. 500 ft.
Yount Lee Oil Co.'s No. 42 State, 1,690 ft. W and 1,320 ft. N of SE cor. of Sec. 13-12s-10w.....Rig.

VINTON—CALCASIEU PARISH

Vinton Pet. Co.'s No. 11 Matilda Gray, Sec. 33-10s-12w, 600 ft. from S line and 195 ft. from W line (D.D.) .....T.D. 3,680 ft.; cmtd. 4½-in. csg. 3,640 ft.; drlg. plug to test.

STARKS—CALCASIEU PARISH

Gulf Refining Co.'s No. 28 Lutcher-Moore, Sec. 19-9s-12w..Derrick.

MISCELLANEOUS WILDCATS
TEXAS

BRAZORIA COUNTY

The Texas Company's No. 1 Belcher, Manvel, 167 ft. SE of NW line and 223 ft. of NE of SW line, Lot 18, Blk. A, Suburban Gardens Subd.....Set 18 ft. of 7-in. screen 5,483 ft. with 6 jts. of 6⅝-in. liner and full string of 4½-in. liner to top; comp. flowing 2,000 bbls. pipe line oil, ¾-in. choke, 425 lbs. on csg. and 205 lbs. on tubing; gravity 25.9°; temperature 92°.
United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peske Sur.....S.D. 1,700 ft.

BURLESON COUNTY

Reynolds Oil Co.'s No. 1 Harris, 500 ft. from W line and 400 ft. from N line of J. M. McKean Sur.....S.D. 400 ft.
Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract.....Spudded.
Marts et al's No. 1 W. H. Boyett, W. McWilliams Sur., 3,168 ft. N of N cor. of City National Bank 208-acre tract and 300 ft. SE of NW line of Boyett tract..No report.

FORT BEND COUNTY

Stone & Wyman's No. 1 Beard, H.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,892 ft. from NE line....No report.

GRIMES COUNTY

Rianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., C of 110-acre tract .....Drlg. green shale 1,375 ft.

HARRIS COUNTY

Givens & Daybault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. .....Drlg. sticky shale 1,901 ft.
Humble Oil & Ref. Co.'s No. 2 Irwin (D.D.), Mykawa, Wm. Lovett Sur.....No report.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 300 ft. from W line, Lot 261, Wm. Lovett Sur. .....Location.
J. P. Hunnicutt's No. 1 Haney, T. Pitching Sur., 150 ft. out of NE cor. of Geo. E. Haney 730-acre tract.....Coring sandy shale 1,662 ft.
Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. .....**Location.**
Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74°.....Drlg. gumbo 1,503 ft.

JACKSON COUNTY

Chicago Gulf Co.'s No. 1 Rogers, SE cor. of Blk. 14, N. Rodriguez Sur. .....T.D. 3,952 ft; cmtd. 6⅝-in. csg. 3,945 ft.; reported drilled plug and comp. as dry gas well.
Chicago-Gulf Oil Co.'s No. 9 Drushell, Edna F. Rodriguez Sur., 1,080 ft. N, 58° E No. 8.....**Derrick.**
Francitas Oil & Land Co.'s No. 1 Thrull, 3,260 ft. SW of N cor., P. Green Sur., 540 ft. SE of E bank Carancahua Creek .....**Derrick.**

LIBERTY COUNTY

L. B. House's (I. R. Ingram) No. 1 C. T. Palmer, James Fenner Sur., 1,000 ft. from W line and 850 ft. from S line of tract.....No report.
Hamm et al's No. 1 Harvard, Davis Hill.....Gumbo 1,015 ft; S.D.

MONTGOMERY COUNTY

Humble Oil & Ref. Co.'s No. 1 W. A. Penn, 750 ft. from N line and 900 ft. from E line of S. J. McFarland Sur. .....**Spudded.**
Strake et al's No. 1 South Texas Dev. Co., 468 ft. in westerly direction along N line of Theo. Slade Sur. from SW cor. of A. McGowan Sur., and thence 750 ft. in southerly direction at right angles from said line in Slade Sur.....Drlg. gumbo 1,486 ft.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract .....T.D. 4,603 ft; sidetracked 1,200-2,200 ft; S.D.
Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1.....S.D. 1,633 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman.....S.D. 3,162 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 .....Rig.
Sunshine Oil Co.'s No. 1 Olliver, A. Viesca Sur., 600 ft. NE along SE line from S or SW cor. of 50-acre tract and thence 200 ft. NW at right angles.....Shale and lignite 4,045 ft.; abnd.
Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract .....S.D. 734 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. .....Drlg. shale 4,616 ft.
Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Ross Sur., thence 7,375 ft. W at right angles in John Keating Sur.....Drlg. shale 2,790 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs.....No report.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell.....Sand and shale showing oil 1,255 ft; cmtd. 6-in. csg. 1,218 ft.
Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line.....Fishing 5,025 ft.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line.....T.D. 5,003 ft; drill stem stuck in heaving shale showing gas; cmtd. 8¼-in. csg. 4,740 ft.; drilled plug to make drill stem test.
The Texas Company's No. 3 McFaddin, S 15° W., 6,200 ft. and N 75° W 1,850 ft. out of NE cor. John M. Rine Sur. .....Drlg. hard, blue shale 4,174 ft.
United Prod. Corp.'s No. 5-A McFaddin, 4,250 ft. N along extended E line of C. L. Mann Sur., in Maria Traviesa Sur. .....Drill stem test 3,754-59 ft. showed dry gas, 400 lbs. pressure; coring sandy shale 3,762 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-ac. tract .....Spudded.

WASHINGTON COUNTY

Cord Oil Co.'s No. 1 Hahn, 500 ft. from N line and 1,852 ft. from W line of J. H. Alcorn Sur., Abst. 3..Drlg. sticky shale 2,362 ft.
Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. .....Drlg. shell 3,290 ft.

WHARTON COUNTY

Bonds & Alexander's No. 1 Hahn, S.A.M.G. Sur., Sec. 13, 800 ft. W and 200 ft. N of NE cor. 152.1-ac. tract .....Drlg. gumbo 1,360 ft.
W. H. Wallace et al's No. 1 Lee, 600 ft. S and 800 ft. W from NE cor., Sec. 18, G.H.&H. Sur.....Rig.

SOUTH LOUISIANA
ASCENSION PARISH

McElroy Petroleum Co., 150 ft. S and 150 ft. W of NE cor., Sec. 29-10s-4e.....Rig up to deepen; formerly abnd. in sticky shale 4,070 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w .....S.D. 875 ft.
L. O. Davis' No. 1 Industrial, Sec. 29-9s-10w .....Standing 6,568 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w .....S.D. 3,650 ft.
Success Oil Co.'s No. 1 Hewlit, 90 ft. out of SW cor., Sec. 11-9s-11w .....Rig.
Vacuum Oil Co.'s No. 1 Wait (D.D.), 225 ft. out of SE cor., Sec. 12-9s-7w .....T.D. 6,979 ft.; sidetracking 5,304 ft.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500-ft. S No. 1) .....Drlg. sand 5,077 ft.; no showing.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 21 Lake Peigneur, Sec. 58-12s-5e, 300 ft. NW of No. 20 .....Sulphur test.
Jefferson Lake Oil Co.'s No. 22 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 21 .....Sulphur test.

Jefferson Lake Oil Co.'s No. 23 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 22 in line with No. 21. . Sulphur test.

IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle Grove-Wilbert, Bayou Choctaw, Sec. 53-9s-11e, 250 ft. W No. 1 Gray .... Drlg. gumbo 1,740 ft.
Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Drlg. water sand 4,580 ft.
Standard Oil Co.'s No. 7 Schwing, Bayou Blue, Sec. 74-9s-10w, N 45°, W 1,800 ft. from No. 5 ..... T.D. 1,350 ft; sand showing oil 1,307-12 ft.; S.D. pending completion of No. 6.

LA FOURCHE PARISH

State Production Co.'s No. 1 Mrs. W. H. Stark, Chacahoula Dome, 1,921 ft. E and 1,340 ft. S of NW cor., Sec. 71-15s-15e ..... Sulphur test.
State Production Co.'s No. 1-B Mrs. W. H. Stark, Chacahoula Dome, 1,921 ft. E and 1,540 ft. S of NW cor., Sec. 71-15s-15e ..... Sulphur test.

PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 5 Cockrell-Moran, Lake Grand Ecaille, 16,377 ft. N and 2,614 ft. W of NE cor. of Twp. 21s-26e ..... Location.
Humble O. & R. Co.'s No. 6 Cockrell-Moran, Lake Grand Ecaille, Twp. 21s-26e, 5,000 ft. E of Washington Sta. ..... Driving piling.
Humble Oil & Ref. Co.'s No. 2 State, Lake Grand Ecaille, Sec. 14-20s-26e ..... Abnd. in salt 1,883 ft.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e ..... Waiting drill pipe 40 ft.
The Texas Company's No. 1 La.L.&E., Bay St. Elaine .... T.D. 5,700 ft; drill stem stuck; abnd.
The Texas Company's No. 3 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.
The Texas Company's No. 10 State, Lake Barre ..... Location.
The Texas Company's No. 11 State, Lake Barre ..... Moving in rig.
The Texas Company's No. 12 State, Lake Barre ..... Location.
The Texas Company's No. 13 State, Lake Bane (W.O.).. T.D. 4,900 ft. in salt; sidetracked and drlg. sticky shale 2,500 ft.
The Texas Company's No. 14 State, Lake Barre ..... Location.
The Texas Company's No. 6 State-Lake Pelto (D.D.), 1,650 ft. N and 670 ft. W from SE cor. tract, Sec. 8-23s-18e ..... Drlg. cap rock 2,047 ft.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Alliance Land, Sec. 34-11s-1w, 2,600 ft. N and 300 ft. E of SW cor., section ..... Salt 6,404-58 ft.; abnd.
Pure Oil Co.'s No. 2 Southwest Louisiana Land Co., 1,300 ft. E and 300 ft. S of NW cor., Sec. 4-12s-1w.. Drlg. gumbo and boulders 2,662 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. Shale and lime 2,050 ft; waiting on 8¼-in. csg.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur..... Rigged up; standing.

DUVAL COUNTY

Camp and Southern Crude's No. 2 Hubbard, 990 ft. from N line, 330 ft. from W line of B.S.&F. Sur. No. 73 ..... T. D. 500 ft.; drlg.
L. E. Lockhart's No. 1 Sutherland, 330 ft. from N and W lines of Sur. 511..... T. D. 1,949 ft.; drlg.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 33, Mesquite grant ..... T. D. 1,712 ft.; standing.
Frank Gravis' No. 1 Shallert, Sur. No. 255..... Drlg. 900 ft.
South Texas Production Co.'s No. 1 Benavides..... Making location.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldeon Sur. No. 13 ..... T. D. 2,610 ft.; flowing fresh wtr.; dropped from report.

FRIO COUNTY

A. H. Wray's No. 1 Roche, 330 ft. from N and W lines of NW SE Sec. 123, A. Hutzler Sur. ..... T. D. 1,526 ft.; shut down.

GUADALUPE COUNTY

Harry Bruner's No. 2 Jim Sherrill, 330 ft. from NW and SW lines of tract in George Allen League..... T. D. 180 ft.; standing.
McGarrity et al's No. 1 A. Wesch, Jr., 150 ft. to N and E lines of farm, H. M. Thompson Sur..... T. D. 1,200 ft.; drlg.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. ..... T. D. 1,745 ft.; shut down.
Linne et al's No. 1 J. E. Linne, center 263-ac. tract in V. Cortario Sur. ..... T. D. 1,570 ft.; shut down.
W. J. Walton's No. 1 Zoboroski, 700 ft. W line of tract, 500 ft. S of Guadalupe River, in Joseph D. Clements Sur. ..... T. D. 2,210 ft.; flowing 8 bbls. daily; dropped from report.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur..... T. D. 930 ft.; standing.

KARNES COUNTY

V. F. Neuhaus' No. 1 Russell, 150 ft. from E line of tract, 150 ft. N of highway, Carlos Martinez Sur. .... Spudded in; drlg. water well.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 3,804 ft. from N line, 1,506 ft. from W line of W. Avery Sur. ..... T. D. 1,245 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T. D. 2,708 ft.; drlg.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,482 ft.; shut down.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county ..... T. D. 50 ft.; shut down.
Sartain's No. 1 Lawhon, 30 ft. SE of Perkins' No. 1 Lawhon; taken over at 281 ft. ..... T. D. 575 ft.; no report.

KERR COUNTY

Herbert Oil Co.'s No. 1 J. D. Witt, 1,320 ft. N line, 1,320 ft. W line of Sec. 1,923, W. H. Hamilton Sur. ... T. D. 200 ft.; standing.
Evans & Gant's No. 1 Selker-Mears, C.C.S.D.&N.G.R.G. Sur. No. 1,605 ..... T. D. 4,031 ft.; shut down.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 ..... T. D. 1,312 ft.; standing.
Evans & Gant's No. 1 Love in J. Martinez Sur. No. 1,594, 1,320 ft. from W line of survey and 660 ft. S of S line of Sur. No. 1,897 ..... T. D. 4,060 ft.; shut down.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 ..... T. D. 1,520 ft.; drlg.

LIVE OAK COUNTY

Henderson Coquat's No. 1 Hewitt ..... T. D. 400 ft.; standing.

LEE COUNTY

Burt et al's No. 1 R. C. Saunders, J. Maxmilian Sur. .... T. D. 4,034 ft.; shut down.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 3,360 ft.; drlg.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. .... T. D. 3,300 ft.; shut down.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera School Land ..... T. D. 2,200 ft.; fishing.

McMULLEN COUNTY

Whall, Scherer et al's No. 1 Shiner, Henry Brewer Sur. .. T. D. 3,003 ft.; shut down.
A. R. Adams' No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 213 Sur. ..... T. D. 175 ft.; drlg.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 ..... T. D. 524 ft.; drlg. in rock.
Genard Bros.' No. 1 L. Crawford, 150 ft. to N and W lines of tract in J. Keppler Sur. No. 478 ..... T. D. 1,734 ft.; drlg.
J. H. Hickey's No. 1 Jungman, at N end Chicon Lake .... T. D. 650 ft.; shut down.
Star Pet. Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20 .. T. D. 825 ft.; drlg.
Yancey Dev. Co.'s No. 1 Fassler, Sur. No. 801 ..... T. D. 1,945 ft.; abnd.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 E. Lawson, 560 ft. from NE and 270 ft. from SE lines of farm in Fernando Rodriguez Sur., near Cause..... T. D. 400 ft.; drlg.
H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tract in B. Wickson Sur. .... T. D. 600 ft.; drlg.
Nowlen's No. 1 Beard, 1,350 ft. from SE line, 450 ft. from SW line of farm, in J. F. Guthrie Sur., 4 miles S Thorndale ..... T. D. 1,495 ft.; drlg.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur. ..... T. D. 4,690 ft.; sidetracking at 3,500 ft.
Wilson-Broach Co.'s No. 1 E. L. White, 250 ft. from S and E lines of S. Frost Sur. ..... T. D. 3,095 ft.; abnd.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Chas. E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur. .... T. D. 4,752 ft.; set csg.; preparing to drill in.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 2,530 ft.; hauling in csg.

SAN PATRICIO COUNTY

Jacob, Buzzini, Pickett's No. 2 Baldwin, three-fourths mile from S and W lines of tract ..... T. D. 3,711 ft.; coring sand.
Welder Oil Corp.'s No. 2 Welder, 150 ft. E of C of W line of 100-ac. tract ..... T. D. 3,654 ft.; tested 1,000 lbs. in 4 minutes; coring.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. ..... Drlg.
Fritz Fuchs' No. 1 L. Ballerstedt, 450 ft. from N line, 750 ft. from E line of tract in Amos Alexander Sur. ..... T. D. 1,200 ft.; drlg.
Fritz Fuchs' No. 1 A. F. Smith, 150 ft. from W line, 750 ft. from N line of tract in D. Kimbor Sur. .... Dropped.
Ray & Henze's No. 1 Hatech, in C of tract in S. Hamilton Sur. ..... Drlg. 100 ft.
Waldron et al's No. 1 T. Cook, 900 ft. from NW line, 3,500 ft. from SW line of D. H. Minor Sur. ..... T. D. 1,200 ft.; shut down.

WEBB COUNTY

Cole Pet. Co.'s No. 4 Benavides, Sur. No. 1,613 ..... T. D. 3,900 ft.; drlg.
Eugene Garner, Jr.'s No. 1 Billings, 411 ft. E line, 956 ft. N line of NW NE, Sur. 71 ..... Building derrick.
O. W. Killam's No. 2 Bruni, S of Los Ojuelos..... T. D. 200 ft.; drlg.
South Texas Production Co.'s No. 1-B Bruni, 660 ft. from NW and SW lines of Sur. No. 127..... T. D. 2,400 ft.; drlg.
Southern Gas Utilities and O. W. Killam's No. 1 de la Garza ..... T. D. 2,570 ft.; complete, 10,000,000 ft. gas, 250 lbs.

WILLIAMSON COUNTY

Citizens Oil Development Co.'s No. 2 Forewood, 1,200 ft. to NE line, 1,420 ft. to SE line of farm and survey in A. S. Fisher Sur. ..... T. D. 1,560 ft.; coring.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown ..... T. D. 1,325 ft.; drlg.
H. Fritz' No. 2 Fee, 35 ft. N of No. 1 Fee..... T. D. 350 ft.; drlg.
McLean's No. 1 R. C. Miller, 300 ft. from S line, 150 ft. from W line of farm in Manlove Sur. ..... T. D. 1,900 ft.; sidetracking.
R. S. Wilson's No. 1 Speckels, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland ..... Drlg. 875 ft.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. ..... T. D. 1,340 ft.; changing rigs.

ZAPATA COUNTY

F. H. Etheridge's No. 1 Henne-Winch, in Sur. No. 286... T. D. 300 ft.; drlg.
O. W. Killam's No. 1 A. M. Bruni, 2,610 ft. from NE line and 3,850 ft. from SE line of 2,561-ac. tract in Borrego grant ..... T. D. 2,035 ft.; abnd.
H. L. Sargent's No. 1 Gutierrez, 922 ft. from W line, 472 ft. from S line of Blk. 5, Porcion 10, in Borrego grant ..... Rigged up and shut down.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant ..... T. D. 1,525 ft.; standing.
National Oil Co.'s No. 1 Zapata Trust estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T. D. 600 ft.; standing.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... T. D. 1,320 ft.; standing.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 37)

LA SALLE PARISH

Gulf Ref. Co.'s No. 1 Tremont Lbr. Co., 668 ft. N, 632 ft. E, SW cor., Sec. 10-9n-2e ..... Drlg. 2,090 ft.

NATCHITOCHES PARISH

Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10.. S.D. 1,518 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10..... Tested dry; S.D. 1,380 ft.

RAPIDES PARISH

Pelican Nat. Gas Co.'s No. 1 Long Bell Lbr. Co., 330 ft. N and E, SW cor., Sec. 3-1n-3w ..... Drlg. 3,211 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11 ..... Spudded in; S.D. 50 ft.
Mack Jourden Co.'s No. 1 Lockett, 4,035 ft. S, 1,080 ft. E, NW cor. SW, Sec. 29, in Sec. 32-13-10..... S.D. 2,550 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.
National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... Drlg. 2,512 ft.
Richland Operating Co.'s No. 1 Baremore, 730 ft. S, 950 ft. E, NW cor., Sec. 19-16n-7e ..... Reaming to set liner 2,409 ft.
Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6. Location.

SABINE PARISH

W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Location.
W. M. Coates' No. 1 Lowery, NE cor. SE SW, Sec. 1-7-13. Began Sept. 3; set 10-in. 100 ft; drlg. 1,275 ft.
Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11..... S.D. 105 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 480 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Tested S.W. and oil 7,627 ft.
R. L. Gay, tr.'s No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. SW SW, Sec. 18-7-13 ..... Rigging up.
Langbridge Oil Co.'s No. 1 Stephens, 330 ft. N and E, SW cor. SE NE, Sec. 17-9-11 ..... Coring 3,500 ft.
T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... Derrick.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13.. Set 8-in. 1,590 ft.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. for wtr. 1,200 ft.

TENSAS PARISH

U. A. Duvall et al's No. 1 Martin Jacob, 150 ft. S, 150 ft. W, NE cor., Sec. 1-14-11e ..... S.D. for fuel 1,760 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

UNION PARISH

Dan Brooks' No. 1 Odus Douglas, 330 ft. S and E, NW cor. NE SW, Sec. 9-22-2 ..... Drlg. 3,328 ft.

ARKANSAS
CHICOT COUNTY
R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 21-28-3 ..... T.A. 2,925 ft.
COLUMBIA COUNTY
Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D. 804 ft.
CLAY COUNTY
S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-8 ..... S.D. 1,252 ft.
CLEVELAND COUNTY
Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w.... Rigged up and S.D.
CLEBURNE COUNTY
(Cable tools)
Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,740 ft.
CRAWFORD COUNTY
Ozark Nat. Gas Co.'s No. 1 Hammond, C SE SE, Sec. 29-10-29 ..... Location.
DALLAS COUNTY
E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... S.D.; W.O. 2,869 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.
Zepp O. & G. Co.'s No. 2 Hillman, 450 ft. E, 340 ft. S, NW cor. SE NE, Sec. 10-20-13 ..... Drlg. 1,800 ft.
DREW COUNTY
Co-Operative Dev. Co.'s No. 1 R. L. Hardy, SW cor. NE NE, Sec. 6-13-7 ..... Drlg. 1,931 ft.
HOT SPRINGS COUNTY
Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.
LINCOLN COUNTY
Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... S.D. 2,800 ft; pulled 1,800 ft. D.S.
LITTLE RIVER COUNTY
Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.
LOGAN COUNTY
J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D; W.O. 3,570 ft.
MILLER COUNTY
W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.
OUACHITA COUNTY
Bolin & McLeon's No. 1 L. D. Nealy, 150 ft. S, 150 ft. W, NE cor., SE SW, Sec. 25-16-15 ..... S.D. 2,036 ft.
Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17.... Drlg. gumbo 330 ft.
PIKE COUNTY
E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... Arranging to set 8-in. to cut off wtr. 338 ft.
SCOTT COUNTY
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D; waiting on csg. 1,860 ft.
SEBASTIAN COUNTY
Ozark Nat. Gas Co.'s No. 1 E. O. Girard, C NW NW, Sec. 34-8-30 ..... Dry and abd. 3,092 ft.
UNION COUNTY
Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13 ..... 600 ft. fluid 30% S.W. in hole; T.A. 3,570 ft.
Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... Derrick.
WASHINGTON COUNTY
(Cable tools)
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. for funds 1,795 ft.
YELL COUNTY
(Cable tools)
Tegmeir & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.
EAST TEXAS
BOWIE COUNTY
Hindeman & Ball's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... S.D. 2,650 ft.
Logan & Elliott's No. 1 Smith 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... Drlg. chalk 3,150 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 30 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.
CAMP COUNTY
McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.
CASS COUNTY
E. K. Atkinson's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... **S.D. 3,021 ft.**
Davis & Piggs' No. 1 Roy Brian, SW cor. Roy Bryan 88-ac. tr., Albert H. Latimer Sur. ..... S.D. 2,055 ft.
Everets Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S, and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... S.D. 3,922 ft; waiting on D.S.
Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... **S.D. 4,195 ft.**
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
John Nelson's No. 1 T. A. Irvin, 200 ft. S and E, NW cor. McNary Harris Sur. ..... Dry and abd. 3,788 ft.
Olds & Smith's No. 1 Athens, 3,056 ft. W-E line, 856 ft. S-N line, J. C. Byers Sur. ..... **S.D. 3,030 ft.**
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 579 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. ..... **S.D. 3,280 ft.**
John C. Rogers et als' No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... **S.D. 955 ft.**
United North & South Co.'s No. 1-A Nickelberry, W. A. Irvin Sur., 300 ft. S and E, NW cor., Nickelberry 50-ac. tr. ..... **Rigging up.**
HARRISON COUNTY
Gholson et al's No. 1 Bivins Farm Co., on J. K. Bivins, Jr.'s 320-ac. tr., Thos. Toby Sur. ..... S.D. 3,085 ft.
Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. ft. from N line to 250 ft. from E line of 105-ac. tr., Findley Sur. ..... **Drlg. 2,660 ft.**
O. O. Olford et al's No. 1 R. W. Bolding, 330 ft. E of SE cor. of J. B. Cullen's 161-ac. tr., 300 ft. N of N line of Mrs. C. L. Brown's 20-ac. tr., W. W. O. Stanfield Sur. ..... **Dry and abd. 3,688 ft; (corrected).**
O. H. Parkening's No. 1 T. J. Taylor, C, Blk. 32, W. H. Payne Sur. ..... **S.D. 2,530 ft.**
Ryan Consolidated Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur. ..... Derrick.
Thomas & Kinsey's No. 1 J. R. Watson, Thos. Iden Sur. Spudded in; drlg. wtr. well.
MARION COUNTY
Gist, Claunch & Dodson's No. 1 Miller, 1,470 ft. E line, 735 ft. N line, SW cor. H. Fulgran H.R. Sur. ..... S.D. 300 ft.
Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,330 ft.
Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W most northerly SW cor., 1,638 ft. N most northerly S line, W. J. Willis Sur. ..... Dry and abd. 3,910 ft.
PANOLA COUNTY
Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur... Spudded and S.D.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D.; changing to heavy rig 550 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... S.D. 1,500 ft; laying wtr. line.
United Gas Public Service Co.'s No. 11 Werner, 1,162 ft. N, 2,418 ft. W, SE cor. D. B. Lewis Sur. ..... Drlg. 2,285 ft.
RED RIVER COUNTY
D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .. S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Deas Sur. .... S.D. 2,280 ft.
SHELBY COUNTY
I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... S.D. 3,280 ft.
E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Reaming to bottom 3,864 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .. S.D. 3,127 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. ... S.D., repairing rig 2,612 ft.
H. P. Glidden's No. 1 Pickering Lbr. Co., Jonas Harrison Sur., 300 ft. E of NW cor., 150 ft. S of N line at right angles Pickering 59-ac. tr. ..... T.A. 3,854 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft; drlg. wtr. well.
T. A. Martin's No. 1 J. B. Bush, S 8 degrees E, 2,000 ft. from NW cor. J. B. Bush's 77-ac. tr., thence E at right angles to said line 200 ft., Alfred Lindsey Sur. ..... Derrick.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... Drlg. 3,030 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... Began Sept. 2; drlg. 276 ft.
Geo. N. Pace's No. 1 E. H. Powers, western J. Timms Sur., 150 ft. E of W line, 200 ft. N of S line, Powers 126-ac. tr. ..... Derrick.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... S.D. waiting on csg. 405 ft.
Schultz et al's No. 1 Hughes, 150 ft. SW cor. Hughes' 110-ac. tr., J. Clay Sur. ..... S.D. in shale 4,155 ft.
A. D. Smith's No. 1 Y. D. Carroll-J. A. Parker Sur., 1,500 ft. N, 300 ft. W, SE cor. J. A. Carroll Sur. .. S.D. 3,040 ft.
C. H. Tautehahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft; waiting on D.S.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... Fishing for D.S. 3,457 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 37)
SABINE PARISH—ZWOLLE
Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12 ..... W.O.S.R. 2,548 ft.
W. M. Coates' No. 1 Bowman-Hicks, 330 ft. S and W. of C, Sec. 2-7-12 ..... W.O.S.R. 2,441 ft.
W. M. Coates' No. 5 Sabine Lbr. Co., 150 ft. N and E, SW cor. NW NW, Sec. 1-7-12 ..... Rigging up.
Hawkins et al's No. 1 Moran, Sec. 1-7-11 ..... 400 ft. oil in hole 2,620 ft; W.O.; S.R.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12 ..... Tested dry; S.O. 2,532 ft.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 ..... W.O.S.R. 2,609 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 ..... S.D. 1,625 ft.
Lanier & Dyer's No. 1 Barthold, 335 ft. N, 535 ft. E, SW cor. SE NE, Sec. 35-8-12 ..... Set 6-in. 2,364 ft; drlg. 2,367 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 ..... S.D. 1,606 ft.
Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-12 ..... Set 15½-in. 100 ft; drlg. 1,235 ft.
Loring Oil Co.'s No. 19 Bowman-Hicks, 1,475 ft. W, 75 ft. S, NE cor. SW NE, Sec. 16-7-12 ..... Rigging up.
Lyons & Neely's No. 1 Duggan, NW SE, Sec. 14-7-11 ... Location.
L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11 ..... S.D. 400 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D. 88 ft.
Houston-Sabine Prod. Co.'s No. 1 Sabine Lbr. Co. (was Triangle Pet. Co.'s No. 2 Sabine Lbr. Co.), 330 ft. N and E, SW cor., Sec. 36-8-12 ..... S.D. 2,440 ft.
Pelican Nat. Gas Co.'s No. 10 La. Long Leaf Lbr. Co., 105 ft. S, 188 ft. W, NE cor. NE NE, Sec. 10-7-11.. Set 10-in. 100 ft; drlg. 1,207 ft.
H. W. Perritt's No. 5 Bowman-Hicks, 330 ft. S, 410 ft. E, NW cor. SW SW, Sec. 2-7-12 ..... Drlg. 1,075 ft.
The Texas Co.'s No. 1 L. C. DeLatin, 1,120 ft. W, 200 ft. N, SE cor., Sec. 3-7-11 ..... Drlg. 1,674 ft.
ARKANSAS
UNION COUNTY—EL DORADO
Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... Drlg. gray lime 5,248 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.
UNION COUNTY—URBANA
Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1 H. Norman, 330 ft. N and E, SW cor. SE NE, Sec. 3-18-13 ..... Drlg. shale 3,480 ft.
EAST TEXAS
PANOLA COUNTY
Daisy O. & G. Co.'s No. 1 Rucks, Jno. Palmer Sur. .... S.D. 3,664 ft.
Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... S.D. 1,555 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. .. Location.
Southwestern O. & G. Co.'s No. 1 E. R. Vinson, 3,005 ft. S, 1,001 ft. W, NE cor. C. T. Anderson Sur. .... S.D. 2,650 ft.
MISSISSIPPI
HINDS COUNTY
Jackson Oil & Gas Corp.'s No. 3 Mayes, Sec. 2-5n-1e, 30 ft. N and 60 ft. W of SE cor. NE NW ..... Derrick (corrected).
RANKIN COUNTY
James Alexander, tr.'s No. 1 Wright Cast Stone Co., 200 ft. S, 1,460 ft. NE cor. NE NW, Sec. 13-5n-1e .. Derrick.
J. E. Grandstaff et al's No. 1 Burford, 2,210 ft. E, 800 ft. N, SW cor., Sec. 11-5n-1e ..... Drlg. 1,460 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

ADAMS COUNTY
Company, farm and location— Remarks:
Ark.-La. P. L. Co.'s No. 1 Brandon Hall Farms, 201 ft. from W line, 390 ft. from S line, Lot 32, Brandon Subd., Sec. 61-15n-1w ..... Began Sept. 6; set 13-in. 367 ft.
CLARKE COUNTY
Gulf Ref. Co.'s No. 1-A Long Bell Lbr. Co., C SW SW, Sec. 10-2n-16w ..... Coring black shale 2,432 ft.
HINDS COUNTY
Hilgard Gas Co.'s No. 1 The Mississippi Co., Sec. 4-5n-1e, 1,300 ft. E and 450 ft. N of cen of section..... Moving in rig.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... S.D. 20 ft; W.O.

UNMEASURED FLOW
PAYS NO DIVIDENDS » » » »

It's mighty easy for a worn or damaged orifice disc to let a portion of the flow pass by without being measured. Ease of disc inspection in a *Robinson Orifice Fitting* eliminates faulty orifice plates and metering accuracy is held at a maximum. Other valuable attributes of this most modern orifice fitting are: ease of installation with lowest costs, elimination of all by-pass piping and fittings, flow unhampered while disc is being removed and occupies least space. Our latest Catalog fully describes the *Robinson Orifice Fitting* and shows many interesting installations; a copy will be sent upon request.

Robinson Orifice Fitting Company
1435 Santa Fe Ave. Los Angeles, California, U.S.A.

Distributors:
THE FOXBORO COMPANY—Foxboro, Mass.
Chicago, Dallas, Houston, Los Angeles, Pittsburgh, Tulsa
WESTCOTT & GREIS, Inc.
Dallas, Houston, Los Angeles, Tulsa

English Distributor:
Walker, Crosweller & Company
54-58 Queen Elizabeth Street
London, S.E. No. 1

Canadian Distributors:
Peacock Brothers, Limited
Montreal — Calgary
Winnipeg

ROBINSON
ORIFICE FITTINGS

F. E. Stewart et al's No. 1 Miss. Cotton Seed Products Co., Sec. 4-5n-1e, 320 ft. S and 440 ft. W of NE cor. SE ..... Derrick.

HUMPHREYS COUNTY

Danciger O. & G. Co.'s No. 1 Belgrade Lbr. Co., C NW, Sec. 29-14n-4w ..... Drlg. 1,187 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. 2,360 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 3,015 ft.
McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-19. Arranging to set 5 3/16-in. 3,404 ft.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E of SW cor. SE, Sec. 25-6n-11e ..... Partly rigged up and S.D.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e.. S.D. for fuel 1,715 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-3e ..... Set 12½-in. at 60 ft.
Gulf Ref. Co.'s No. 1-A Hanna, Sec. 23-6n-1e ..... D.S. stuck 2,745 ft; T.D. 2,815 ft.
Muse & Muse's No. 1 Webb, center Lot 32, Blk. B, East Jackson Pl., Jackson City Subd., Sec. 12-5-1 .. Drlg. Wilcox 1,880 ft.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Meredith et al's No. 1 Allen, 470 ft. W, 295 ft. N, SE cor. SW, Sec. 12-5n-1e ..... Drlg. Wilcox 2,075 ft.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 23-6-1e.. S.D. 900 ft.
Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e ..... Drlg. 2,398 ft.
United Gas Public Service Co.'s No. 1-A McLaurin, 2,-950 ft. E, 660 ft. S, NW cor. SW, Sec. 8-5n-2e..... Rigging up.
Willis & Culley's No. 1 Applewhite & Holden, 10 ft. N, 50 ft. E, SW cor., Sec. 12-5n-1e ..... Rigging up.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.
United Gas Public Service Co.'s No. 1 Tchula Co-Operative Store, 1,980 ft. W, 660 ft. N, SE cor. SE, Sec. 33-15n-3e ..... Rigging up.

WEBSTER COUNTY

P. J. McAlpine's No. 1 Henly (was Cumberland Oil Co.'s No. 1 Henly), SE NW, Sec. 15-21n-11e ..... S.D. 1,800 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14 ..... Drlg. 3,375 ft.

LA.-ARK. FIELDS

(Continued from Page 37)

in addition, filling in all crevices on the outside of the surface casing. All flow of gas has been stopped and the hole reamed down to 2,595 feet. The total depth of the well is 3,868 feet. Those familiar with the operation say that the gas is coming from the bottom of the hole, and 4½-inch casing will be set for a test.

Daily Average Runs

There was a net increase of 300 bbls. daily in the average runs from the North Louisiana and Arkansas Fields during the last week. Daily average runs from the several pools were:

NORTH LOUISIANA	
Caddo, light	6,195
Caddo, heavy	1,695
Homer	2,800
Haynesville	4,930
DeSoto and Red River	2,220
Elm Grove	390
Cotton Valley	350
Urania	3,200
Pleasant Hill	360
Sarepta-Carterville	910
Zwolle	6,450
Holly	380
Total North Louisiana	29,880
Total previous week	29,785
Increase	95
ARKANSAS	
El Dorado	3,180
Smackover, light	3,200
Smackover, heavy	26,780
Stephens	600
Nevada	1,150
Lisbon	600
Champagnolle	2,220
Urbana	365
Total Arkansas	38,095
Total previous week	37,890
Increase	205
Total both states	67,975
Total previous week	67,675
Increase	300

EASTERN FIELDS

(Continued from Page 48)

County, I. L. Storts and others drilled a test well on the D. L. Tanney farm in Geary district. It was completed at 1,-739 feet, the Injun sand, and will make a fair gas well.

Drilling in West Virginia

In Jefferson district, Lincoln County, the Turtle Lick Gas Co. has started drilling a test on the Alice Brumfield farm. In McComas district, Cabell County, the Madison Gas Co. is rigging up to drill a second test on the Nelson Holton farm. In Guyandot district, same county, C. C. Wolf is building a rig for a third well on the Ben Lomond Land Co. tract.

In Roane County, the United Fuel Gas Co. has its deep test on the J. W. Hinzman farm in Curtis distirct down to 7,345 feet. In the same section, the Reedy Oil & Gas Co. has part of the material on the lease for its second test on the A. J. Paugh farm. In Spencer district, J. P. Young and others have started drilling on the Holly Walker farm, and the Ohio Valley Gas Corp. has hauled in the materials to start No. 15 on the R. M. Jennings farm. The Heck Oil Co. is ready with the materials to start work on its No. 5 on the H. W. Allen farm in Reedy district. In Harper district, the Clifton Oil & Gas Co. is geting ready to build a rig on the J. L. Looney farm for No. 3.

In Calhoun County new work is slightly greater. In Lee district, Ed Smith and others have reached 1,945 feet on the L. S. Force farm and will soon strike the Injun sand. F. F. McIntosh is down 1,550 feet in a second test on the Ed Gunn farm, and has material moved in to start a second well on the Fox and Morgan lease, both in Lee district. In the same district, the Crummies Creek Fuel Corp. has reached 2,-125 feet in a second well on the D. J. Brannon farm. On the Sylvester Brannon farm, L. L. Townsend and others have a rig standing for a test, and M. F. Crawley is drilling at 2,070 feet on the A. Hardman and others' lease, Lee district. In Center district, Bickerstaff and others have shut down at 2,323 feet on the W. A. Stallman farm and W. H. Bickel has shut down at 1,870 feet on the I. A. Gainer farm. In the same district, G. A. Jarvis and others have a rig standing on the M. E. Freshour farm, and W. H. Bickel one on the George D. Starkey farm for a second test. On the W. H. Jackson farm, the Bowser Oil Co. is building a rig for a fifth well, and T. J. and A. H. Jackson are likewise rigging up for a second test on the T. J. Jackson farm, both in Center district. In the same district, Godfrey L. Cabot is holding a location on the I. A. Gainer farm. In Sheridan district, the Chemical Oil Co. is down to the 2,000-foot level on the Fling and Elder tract. C. B. Lewis and others have started drilling on their test on the Kenny and Yoke lease. In the same section, Roy Waggoner and others have a rig standing on the Clay Chenowith farm, and T. J. Crawley has made a location for No. 4 on the William Cooper farm.

On the waters of Big Island Run, Clay district, Wirt County, Harold Dailey and others have completed a rig for a second test on the Thomas Lewis farm. In Raleigh County, G. L. Cabot is down 1,240 feet in a third well on the Beaver Coal Co. lease in Trap Hill district. In Greenbrier County, the Thompson Har-

Naylor SPIRALWELD Pipe... Structurally Strong Yet

LIGHT IN WEIGHT!

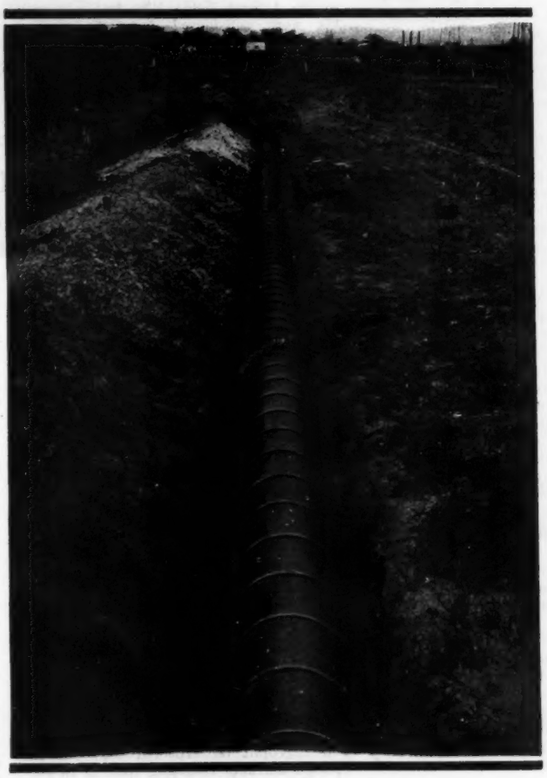
NAYLOR SPIRALWELD Pipe weighs one-half as much as standard weight wrought pipe, yet it is being used for the same pressures because of the added strength provided by its SPIRALWELDED lock-seam.

■ A strong pressure pipe, light in weight, is a good investment.

■ Light weight Naylor SPIRALWELD Pipe can be loaded, transported, unloaded and strung at less cost. And, since it is easy to handle, fewer men are required in the field. Consequently, coupling and laying costs are lower.

■ A comparison of the cost figures made by a large oil company which laid a Naylor SPIRALWELD Pipe line and a standard weight pipe line (of the same diameter) showed light weight Naylor SPIRALWELD Pipe to have effected savings of $500. to $2000. per mile—in trucking, unloading, stringing and coupling costs alone!

■ For long life Naylor Pipe is made from Toncan Iron—the corrosion resisting alloy of iron, copper and molybdenum.



A 16" Naylor SPIRALWELD Pipe line, 40-foot lengths—serving a prominent company in Oklahoma.

NAYLOR PIPE COMPANY, Main Office & Plant, 1230 E. 92nd St., CHICAGO

PIPE CARRIED IN STOCK at CHICAGO, HOUSTON and LOS ANGELES

TRADE MARK NAYLORPIPE

SALES OFFICES

NEW YORK, 3116 Chrysler Building
PHILADELPHIA, Witherspoon Building
TULSA, 507 Philtower Building
HOUSTON, 2301 Commerce Street
DALLAS: 305 Magnolia Building
LOS ANGELES: Champion & Barber, Inc., 576 Subway Terminal Building., Exclusive Distributors: California, Nevada and Arizona
MONTREAL, CANADA: Mechanical Equipment Company, 660 St. Catherine St., West
VANCOUVER, B. C.: Gordon & Belyea, Ltd., 101 Powell Street
MEXICO: C. H. Elsner, Apartado 294 Monterrey N. L.

ris Co. has its test on the Samuel Hinkle farm shut down. In Hamilton district, Nichols County, the Hamilton Gas Co. has made a location on the Craig heirs' farm.

SOUTHWEST PENNSYLVANIA

The Southwest Pennsylvania fields have very few wells drilling and operators in this section have devoted the summer mainly to necessary improvements. No wells were completed during the week and just two wells are due to be completed within the next two weeks.

Among the new work, Leidecker and Gasser & Co. have completed a rig to drill a second well on the P. Shenat farm in Wexford district, Allegheny County. Stock & Co. have reached 450 feet in a second test on the William Cain farm, Robinson Township, Washington County. In Greene County, H. D. Freeland & Co. are down 3,080 feet in deepening their old test on the Silas Coen heirs' farm in Wayne Township.

CANADIAN FIELDS

(Continued from Page 43)

LSD 9, Section 9-3-15w4, has encountered a show of oil in the lower Devonian horizon around 4,950 feet. Drilling had been carried through 12 feet of sand showing a decide saturation. This is the first substantial oil show encountered in the Devonian horizon in Alberta, though traces of oil are claimed to have been met in the Devonian at Peace River many years ago, and more recently Moose Oils' No. 1 on Moose Dome encountered wet gas in the Devonian horizon. Commonwealth's No. 1 has been drilling for several years. It got the Madison contact around 2,800 feet and entered the Devonian lime at 3,485 feet. Some shows of oil were met at higher levels. So far, little if any gas has been encountered.

Hudson's Bay Test

In the Keho Lake area, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is reported drilling in the Blairmore-Kootenay formation at 4,585 feet, more than 800 feet below the horizon in the Bentons where a substantial show of crude oil was met. The Sunburst, Ellis and Madison lime horizons all underlie the present depth, and the first of these should be reached with a little more drilling.

Border Fields

West of Coutts, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, on the Twin River structure, is drilling below 2,500 feet after running 13⅜-inch casing to 2,495 feet.

On the Reserve Dome, 45 miles east of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-9w4, is making new hole below 1,935 feet. Several gas flows, including one estimated at 12,000,000 feet from the Bow Island sand, have been encountered, and drilling is being continued to a potential oil sand around 2,000 feet.

Canadian operators are watching the drilling in the Cutbank gas field of Montana, where L. B. O'Neill and associates have brought in another gasser. The field is just south of Cardston, Alberta. Some drilling was done years ago in the Cardston area, but it failed to develop production, and the Cutbank drilling indicates the earlier Cardston tests missed the structure which probably extends north from Montana.

New Test for Gas

In the Brooks area, southern Alberta, S. E. Slipper, geologist, is reported to have located a test for the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary on the Bailie lease, close to Brooks. It is reported a diamond drill outfit will be used. The test is for gas to supplement the present supply for the town of Brooks.

Tests in the Foothills

On the Moose Mountain structure, Graystone Petroleum Consolidated's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, is reported drilling in the Fernie shales below 4,202 feet, and close to the Madison limestone. Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, after a difficult fishing job at 3,184 feet, is making new hole and will carry 10¾-inch casing down behind the tools.

On Fisher Creek, North Waite Valley, Cotton Belt Mines' No. 1, LSD 5, Section 2-21-4w5, is drilling below 1,825 feet after straightening a small length of crooked hole. Recent samples are reported to show traces of oil.

On the Pincher Creek structure, Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, is reported drilling around 3,576 feet.

On the High River-Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling around 5,040 feet with slight additional gas flow.

Ribstone Test Abandoned

In the Ribstone Field, eastern Alberta, Algonquin-Commonwealth's No. 2, LSD 5, Section 16-45-1w4, has been abandoned at 2,200 feet after drilling to the lime.

Geologist Discusses Alberta

In a recent address at Lethbridge, Dr. J. O. G. Sanderson, geologist for Imperial Oil, Ltd., and president of the Alberta Petroleum Geologists Association, referred to new conditions and practices in the Alberta fields. "No test," he said, "is now considered complete without penetrating all the Mesozoic and the upper formations of the Paleozoic, limey rocks. The wisdom of this course was decisively demonstrated at Spring Coulee where the Mesozoic section appeared to be practically barren locally, but the underlying Madison had splendid showings of good grade crude oil. Besides this present tendency to test the lower rocks, another is to locate wells on the basis of broader regional geological considerations. The Alberta syncline on the east flank of which Lethbridge is located is now given serious consideration as being a major structural control in the localization of oil and gas pools." In developing policy the operating companies are scattered rather than concentrating their tests. Four-fifths of the money spent in Alberta drilling has been spent on Turner Valley and adjacent prospects; but the limited wildcatting on the plains has shown encouraging results, and even so-called dry holes had encountered good oil and gas shows. "It seems practically certain," said Doctor Sanderson, "that propitious combinations of factors for large volume, high pressure fields will be found somewhere in the country."

Saskatchewan Test

In eastern Saskatchewan, Simpson Oil Co.'s No. 1, Section 9-29-25w2, is a salt well at around 3,500 feet. The test drilled through numerous small oil shows and at this depth had a salt vein some 14 feet thick. The company is planning a second test more favorably located for oil.

Manitoba Gas Test

In the Manitou district, southwestern Manitoba, Commonwealth Petroleums' No. 2, LSD 2, Section 26-2-9WPM, is standing at 800 feet, following completion of the first drilling contract. Some gas has been encountered with a small oil show reported at 725 feet.

British Columbia Test

Drilling operations are being resumed by International Pipe Lines, Ltd., on its holdings in British Columbia on Lulu Island, near Steveston. The company has drilled four tests in this area. Work was started last fall when the old Richmond well, near Steveston, was plugged back to between 600 and 700 feet. Tubing and packer were run to this horizon, and a smal gas flow, estimated 500,000 feet, was developed. Later, the gas was shut off by quicksand and silt. International's No. 2 was then started and got a similar gas show at the same depth, but also sanded off. After No. 3 test got gas, a string of screen pipe was run which successfully controlled the sand on a several days' test; but when the pipe was pulled to drill deeper, the upper string collapsed. No. 4 test encountered the silty sand above the gas horizon at 725 feet, and has been able to control the sand by the use of fine screen pipe. No. 4 has a fair commercial gas flow and efforts will now be made to continue to the lower sands, which were not reached in the earlier tests.

The International company also started two tests in the Sumas area; No. 1 was lost at 250 feet and No. 2 has been standing for some time at 340 feet. Locations are in LSD 222, Section 22-19-5e. The International company, which has its office at Vancouver, British Columbia, is also interested in development in the State of Washington, and has undertaken to complete the Flaming Geyser well near Enumclaw.

Ontario Drilling

In Middlesex County, Ontario, Union Gas Co.'s No. 1, Lot 7, Concessions 5 south, Ekfrid Township, is reported drilling around 1,600 feet. A smal show of gas was reported at 1,175 feet.

In Kent County, Southern Ontario Gas Co.'s test, in Lake Erie, opposite the George H. Dawson farm, Lot 187, Talbot Road, Romney Township, is reported drilling at 1,100 feet after encountering a small show of gas. In Raleigh Township, Olga Oil & Gas Co.'s No. 2, Lot 20, Concession 8, is drilling around 1,100 feet.

The Black Bear Oil & Gas Co., Ltd., has been incorporated to take over some 20,000 acres of leases and options acquired by Col. A. C. Waters of Detroit and associates of the Black Bear Syndicate in northwestern Kent and southwestern Lambton. Officers are: George Drake, president; Fred W. Martin, vice president; E. G. Smith, secretary.

OIL PRODUCERS SALES AGENCY APPROVES STANDARD MERGER

LOS ANGELES, Calif., Sept. 12.—Ralph B. Lloyd, president, and Rush M. Blodget, vice president and general manager of Oil Producers Sales Agency of California, upon being shown the newspaper report concerning the protest sent to the United States Attorney General by the "Independent Petroleum Association of California," against the proposed merger of Standard Oil Co. of California and Standard Oil Co. of New Jersey, made the following comment:

"The Oil Producers Sales Agency of California has no knowledge of the proposed merger of Standard Oil Co. of California and Standard Oil Co. of New Jersey, except as reported in the newspapers, but it recognizes that the oil industry has become an international business and for that reason the policy of this country should be to protect the business of its citizens so far as may be necessary to enable them to compete successfully in international markets and thereby create an outlet for the natural resources of this country. A proper merger of such large oil interests certainly would tend to stabilize the oil situation, and it could be expected that the increased markets resulting from it in foreign countries would be a direct benefit to all legitimate oil producers in this country. There is no reason to assume that the Standard Oil Co. of California in such a merger will depart from its past practices of honest dealing and fair treatment of independent oil producers and the public.

"The size alone of a company does not mean that the conduct of its business is oppressive or that its aim is to monopolize business.

"Standard Oil Co. of New Jersey operates in the Mid-Continent and on the Atlantic Seaboard, and Standard of California on the Pacific Coast. We are informed that the operations of the two companies overlap only in Texas. We believe that any merger between such companies would inevitably lend a stabilizing influence to national phases of the industry, and be of great help in preventing wasteful practice in the industry.

"It is a matter of common knowledge that the combined companies would have an immense fleet of seagoing ships, which could carry United States commerce to the seven seas, and furnish a world outlet for the products of California.

"The need of the industry is more markets for products. We have plenty of oil; but we need more outlets. If this merger or any other will provide such outlets in foreign lands, we will all be benefited.

"The public is interested vitally, more so than it realizes, in the welfare of the oil industry on account of the large number of persons employed by it, and their great wage earning power. This has been emphasized in southern California during the recent month by the large number of people in the industry being thrown out of employment because some oil operators persistently violated fundamental business principles, and involved the entire industry through ruthless overproduction, and otherwise.

"It is only when the supply and demand of oil is balanced through proper and fair stabilization agencies that these conditions can be corrected. If the honest merger of two strong companies, either these companies or others, whose operations do not serve the same territory can aid in preventing a recurrence of the recent disastrous conditions in the oil business, this agency sees no reason to oppose it, nor why any person or group, sincerely interested in the permanent welfare of the industry, should oppose it.

"Oil Producers Sales Agency of California has no entangling alliances. Its policies cannot be expected to be in full accord with the views of all people interested in the oil industry. It wants to relieve the distress of those engaged and those employed in the oil industry through colective bargaining for its members, with the hope that it will result in a fair market for all the oil they produce under proper curtailment based upon supply and demand. The agency has no quarrel and holds no brief for any other interest in the oil industry and it is not content to let those in the business who are unwilling to observe the principle of fair play attempt to undermine the proper stabilization of the business by raising false issues.

"Oil Producers Sales Agency of California represents and speaks for that preponderating number of California independent producers who are curtailing production to the end that production be balanced with markets and that each have his fair share of the markets. Any proper step in the industry which will increase these outlets is looked upon with favor."

SOUTHWEST TEXAS FIELDS

(Continued from Page 40)

is making good progress considering that it is in rock country. He is down below 700 feet with his No. 1 Specht, which was first reported as being in Kendall County.

In the Kerr County district which was much in the limelight for a time there is only one well making much progress. The Evans & Gant's No. 2 Love is down 1,985 feet and has a light show of gas.

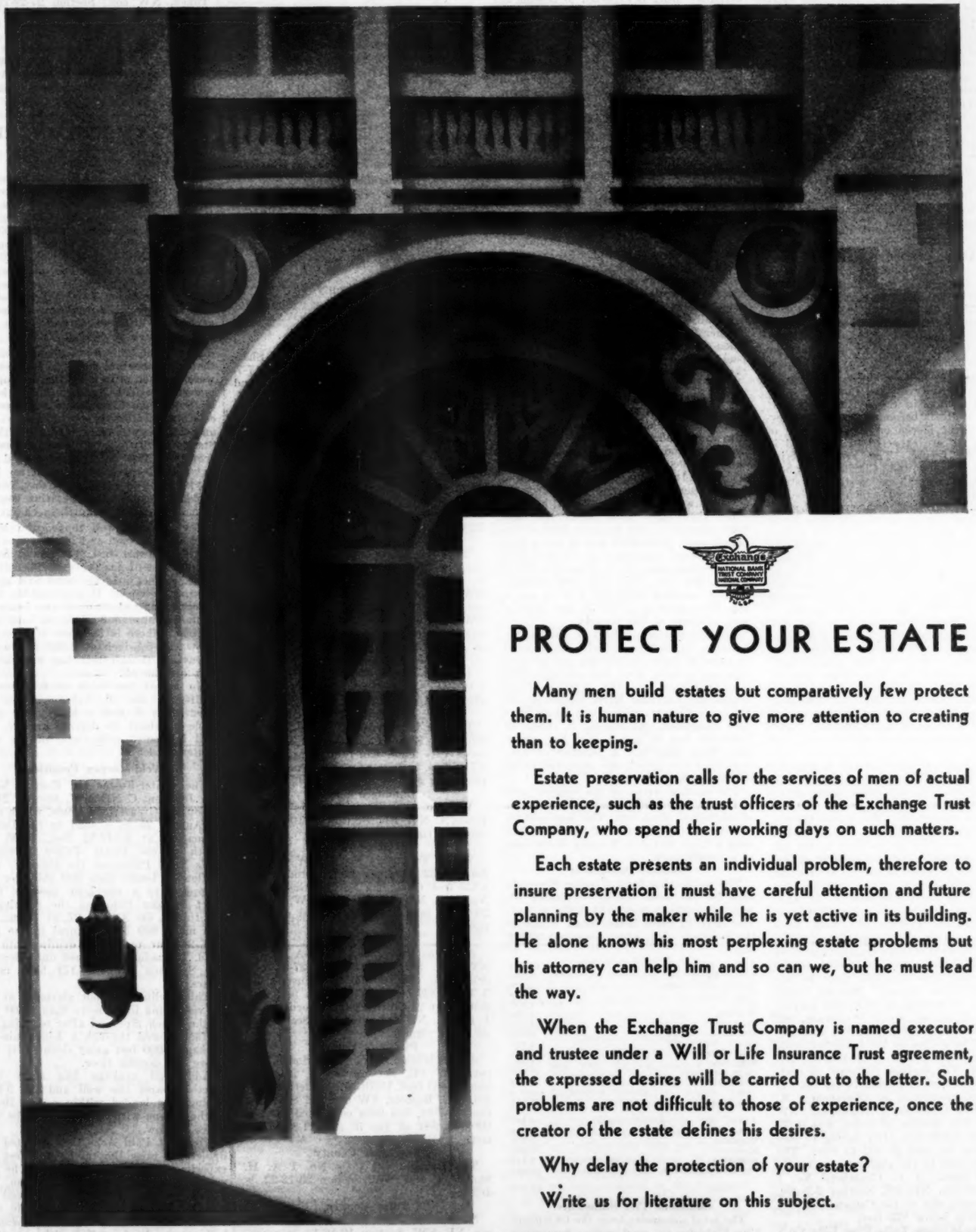
West of San Antonio, A. H. Wray's No. 1 Roche, in the northeast corner of Frio County is down 1,526 feet and temporarily shut down.

Pettus District

T. B. Slick's estate changed the location of its No. 1 Ray a mile southwest of the Pettus townsite in northern Bee County and instead of an east offset to the J. M. Davis (Da-Mac Oil Co.) No. 1 Ray it is now a north offset. It is 210 feet southwest of the northeast corner of the John W. Williamson Survey and 330 feet northwest at right angles to the north line of the survey. The Davis test is 330 feet from the northwest and northeast lines of the Williamson Survey. This is the first test drilled since Davis completed his test for a good well in sand corresponding to the regular sand of the field and which is now connected with pipe line, but pinched down to about 100 bbls. a day.

With the United Production Co.'s No.

COMPLETE BANKING SERVICE



PROTECT YOUR ESTATE

Many men build estates but comparatively few protect them. It is human nature to give more attention to creating than to keeping.

Estate preservation calls for the services of men of actual experience, such as the trust officers of the Exchange Trust Company, who spend their working days on such matters.

Each estate presents an individual problem, therefore to insure preservation it must have careful attention and future planning by the maker while he is yet active in its building. He alone knows his most perplexing estate problems but his attorney can help him and so can we, but he must lead the way.

When the Exchange Trust Company is named executor and trustee under a Will or Life Insurance Trust agreement, the expressed desires will be carried out to the letter. Such problems are not difficult to those of experience, once the creator of the estate defines his desires.

Why delay the protection of your estate?

Write us for literature on this subject.

EXCHANGE BANKS OF TULSA

The Exchange National Bank ❖ Exchange Trust Company ❖ Exchange National Company

39 Ray on the northeast edge of the field standing at 4,530 feet after missing the sand, there is no other activity in the Pettus immediate district and the next interest will shift to the Humble Oil & Refining Co.'s No. 1 Thompson southeast of Pettus, and Hughes and others' No. 1 Martin 1,000 feet south of the Simms Oil Co.'s No. 1 Holzmark which opened a new field, about 10 miles southwest of Pettus. Both tests are getting ready to start drilling. Simms drilled two gas wells and there has been no further development.

The Humble test is in the southeastern part of Bee County, about 8 miles east of Skidmore. Humble has a big block of acreage there and Hulburt and others last year drilled No. 1 Mrs. Denver Chestnut to a total depth of 5,010 feet and got a dry hole, on the Humble's block and about 3 miles northeast of the present Humble location.

OKLAHOMA FIELDS

(Continued from Page 34)

leased the E half SW, Section 15-25-6w. The Gypsy Oil Co. has released the N half SW, Section 1-28-7w.

Other counties where considerable checkerboard acreage has been surrendered includes Okfuskee, Kay, Kingfisher, Noble, Payne and Stephens Counties.

Activity in Coal County

Coal County in the southeastern part of the State is becoming active and several wildcat blocks on the west side of the county are expected to be drilled in the near future. The area centering around Tupelo and Clarita has been worked by several geologists and structure has been found which may be developed. The first commercial showing of oil and gas in the county was found in W. E. McCraw and others' No. 1 Patton, C NW SE, Section 35-1-8, which was drilled to the Simpson sand and found dry and then plugged back to the sand at 1,845-60 feet, where it flowed between 20 and 30 bbls. of oil a day and 2,000,000 feet of gas. The oil tested 48° gravity.

Leach and others' No. 1 in the SW cor. SE, Section 35-1-8, is a new location which is expected to start drilling within a week. McGuire and others' have taken over the old Van Orden test in SE cor. NW, Section 31-1-0, and will drill it deeper from 1,500 feet where it has been shut down. Continental Oil Co. has a block of approximately 2,000 acres centering around Sections 22 and 23-1-8.

In Washita County Ahrens & Prince's No. 1 Currin, SW cor., Section 21-8-18w, has cemented the 12½-inch casing at 1,040 feet and was drilling deeper at 1,140 feet, with cable tools. The Eason Oil Co. has contracted to furnish the 12½ and 10-inch casing for an interest in the adjoining acreage. The test is being drilled on a block of 4,800 acres. It is creating considerable interest in the area as little is known of the formations in the Anadarko Basin district of western Oklahoma.

In Stephens County two wells were starting and another pair were drilling deeper. Several acreage transactions have been made during the last month in the county and new locations may be announced in the future. Murray Petroleum Co. is moving in tools and preparing to rig up at No. 1 Wilkerson, SE cor. NE SE, Section 8-1s-5w, and the well will be drilled to the 1,250-foot horizon. G. Pace's No. 1 McMaster, NE cor. NW NE, Section 13-2s-8w, is moving in tools and preparing to rig up. It is located northwest of Comanche. K. D. Drilling Co.'s No. 1 Hightower, SW cor. SE NE, Section 15-3s-5w, was drilling below 1,000 feet, after failing to find production in sand at 935-45 feet. The test is located in the shallow area southwest of Loco. J. C. Chambers' No. 1 Dare, SE cor. NE SE, Section 2-2s-8w, on the north side of the Comanche Field, was drilling below 825 feet.

Duncan-Wichita Falls Pipe Line Co.'s No. 7 Tucker, NE cor. SE SE NW, Section 34-1s-8w, has resumed drilling at 1,980 feet after being shut down for water. It is an old well drilling deeper.

G. Pace's No. 1 B. Toney, NW cor., Section 27-2s-7w, a wildcat east of Comanche, was abandoned at a total depth of 1,964 feet, after finding salt water.

Oil activities in Carter County were quiet during the week. The Tatums Pool, which has been shut in by the governor's executive order is expected to become active when the shutdown order is lifted.

The wildcat test in Murray County, Capitol Producing & Refining Co.'s No. 1 Cutchall, SE cor. NE, Section 6-1-2, which was drilling at 1,300 feet on the last reports, found a showing of oil in shallow sand. The depth of the oil showing was not reported.

In Shallow Territory

The area northwest of Muskogee, in Muskogee County, is being developed for gas production and the old producing gas area in the southeastern part of Wagoner County, across the Arkansas River may be joined by future drilling. The Jolly Pool in Muskogee County was given its largest gas well during the week when Jolly & Reed's No. 1 Bemo, NE cor. NW NW SE Section 8-15-18, which extended the producing area a half mile to the west, showed 8,500,000 feet of gas a day with a rock pressure of 730 pounds, from sand at 1,580-84 feet. The well was originally drilled to the Muskogee and Timber Ridge sands about two years ago, when the first oil was discovered in the pool, but no production was found and the hole was temporarily abandoned.

The first producer in the area was drilled by H. L. Jolly and others a little more than two years ago to the lower Wilcox sand where a showing of oil and gas was found, which was drowned out by water and the test plugged back to the Muskogee sand and completed for an oil well. In March the same operators drilled another test and completed the first gas well in the Wilcox sand horizon. Since then eight other producers have been completed with an open flow of approximately 40,00,0000 feet of gas a day.

The second completion in the pool during the week was C. C. Wachob's No. 1 Benge, SW cor. NW SW NW Section 9-15-18, making 3,500,000 feet of gas a day from sand at 1,562-78 feet with a rock pressure of 700 pounds.

The completion of Jolly & Reed's No. 1 Bemo, in Section 8-15-18, is believed by some to indicate that the gas production in the Jolly Pool may connect with gas production in the Bradley Pool, across the Arkansas River northwest, in Wagoner County, where two wells have been completed, one making in excess of 7,000,000 feet of gas a day, but which have been shut in. A number of new tests that are offsets are expected to be drilled in the near future.

The shallow areas in the eastern part of the State are being developed in search of additional flush oil. The low cost of drilling on the east side of the State has been a large factor in keeping operations at a steady pace.

Seminole Production

The production from Greater Seminole area for the week ending September 10, was approximately 63,115 bbls. a day. The first 12 pools listed below comprise the Seminole area, which averaged 39,310 bbls.:

Pool—	(Bbls.)
Little River	9,105
East Little River	1,430
Carr City	5,010
Maud	1,035
Mission	1,710
Bowlegs	4,005
Earlsboro	8,445
South Earlsboro	2,845
East Earlsboro	1,740
Seminole	1,015
East Seminole	805
Searight	2,165
Total	39,310
Allen	3,105
Asher	380
Wanette	1,790
Konawa	1,195
Sasakwa	3,340
St. Louis-Pearson	13,995
Total	63,115

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending September 12 were 127,085 bbls., an average of 18,155 bbls. a day. The shipments by companies were as follows:

Company—	(Bbls.)
Empire	5,958
Champlin	17,919
Magnolia	22,658
Oklahoma	31,873
Stanolind	29,549
Tidal	8,246
Anderson-Prichard	2,526
Sinclair	7,866
Continental	445
Total	127,085

The daily production and pipe line shipments from the Oklahoma City Field for the week ending September 12 were as follows:

Date—	Prod.	Wells	Shipments
Sept. 6	4,366	14	42,675
Sept. 7	10,212	10	32,679
Sept. 8	3,551	10	13,573
Sept. 9	17,555	13	9,725
Sept. 10	7,953	10	9,694
Sept. 11	2,545	9	13,199
Sept. 12	4,872	10	5,440

Cherokee County

William La Perrie and other' No. 1 J. Woods, C SE SE, Section 27-17-21, is drilling at 725 feet.

Comanche County

Ashcroft & Palmer's No. 2 Pope, SW cor. NE SW, Section 28-2-10w, is drilling at 140 feet.

Coal County

Rabial Oil Co. moved a machine in for No. 1 Richardson, NE cor. NW, Section 2-1s-8.

Creek County

A. G. Blauner and others' No. 1 Shaffer, SW cor. SE NW, Section 30-17-7, has spudded and shut down. McCurry and others' No. 1-A Shoals, SW cor. NW, Section 33-17-11, has been abandoned at 1,972 feet.

Marshall County

R. L. McCrory and others' No. 1 Little, NW cor. SW, Section 30-7s-6, has been completed for a 30-bbl. pumper in sand 495-97 feet. J. F. McCrory and others' No. 1 Adams, NE cor. SW SE, Section 31-7s-6, made 5 bbls. in sand at 528-30 feet.

Muskogee County

Taylor & Geiger's No. 1-A Ware, NE cor., Section 18-15-15, is rigging up. W. F. Simpson and others' No. 1 M. Sango, SW cor. NW NW, Section 17-15-18, is spudding. C. C. Wachob's No. 1 Benge, SW cor. NW SW NW, Section 9-15-18, has been completed for 10,000,000 feet of gas in sand 1,562-85 feet.

Okfuskee County

Parkhill and others' No. 1-A Rentie, NW cor. SW, Section 24-12-11, has been abandoned at 600 feet.

Oklahoma County

Phillips Petroleum Co.'s No. 2 Mosey, SE cor. NE NW, Section 3-11-3w, Oklahoma City Pool, has been completed for 8,710 bbls. in four hours on 4-inch choke, producing at a total depth of 6,482 feet.

Okmulgee County

William Sherry and others' No. 1 Pense, C NW SE, Section 21-16-11, is a machine rigging up.

Osage County

W. H. Twyman's No. 2, NW cor. SE, Section 32-22-8, has been abandoned at 1,325 feet. Oklahoma Natural Gas Corp.'s No. 1839, NW cor. SE SW NW, Section 26-21-11, is dry and abandoned at 1,776 feet.

Pawnee County

Arkansas Utility Co.'s No. 1-A Nielson, NW cor. SE SW, Section 27-21-8, is drilling at 630 feet. M. B. Jensen's No. 3 Tate, NE cor. NW, Section 9-20-9, is drilling at 210 feet. Charles Cornet's No. 1 Pierce, NE cor. SE SW, Section 20-20-10, is rigging up.

Pittsburg County

J. E. Weible's No. 1 O. Smith, NE cor. NW SE, Section 5-8-16, is a dry hole at 467 feet. Utilities Production Co.'s No. 5 C. Basbom, SW cor. SE SW, Section 10-7-18, has been completed for 28,000,000 feet of gas in sand 1,809-1,927 feet.

Sequoyah County

The Braman Oil Co.'s No. 1 A. H. Sharpe, C NW SW, Section 29-12-22, is drilling at 180 feet.

Tulsa County

Norfork Oil Co.'s No. 1 M. Tiger, NW cor. NE NW, Section 19-16-14, is a machine rigging up. Gypsy Oil Co.'s No. 10 Hardridge, SW cor. NW SW, Section 36-18-12, has been deepened from 2,025 feet to 2,223 feet and abandoned.

Stephens County

American Pipe Line Co.'s No. 7 Dexter, NE cor. SE SE NW, Section 34-1s-8w, is an old well drilling deeper at 1,970 feet. George Pace and others made location for No. 10 McMasters, NW cor. SW NE NE, Section 13-2s-8w. No. 1-B Toney, NW cor., Section 27-2s-7w, has been abandoned at 1,964 feet.

Wagoner County

Willis & Jones moved a machine in for No. 5 S. Jones, SE cor. NW SW SW, Section 29-18-18. No. 1 S. Jones, SW cor., Section 29-18-18, has been deepened to 785 feet and abandoned.

ROCKY MOUNTAIN AREA

(Continued from Page 43)

Colorado, which in the meantime had made a deal with the Five Square company, completed its No. 1 Hertha, NW cor., Section 21-4n-69, at 3,792 feet with an initial production of around 100 bbls. daily. Early this year the same company drilled its No. 1 Hall, NE cor., Section 20-4n-69, and encountered a stray gas sand at 668-700 feet. It was completed at that depth for 1,000,000 feet of gas. Several other wells were started the past spring by different interests, but none of these have reached the pay.

The results up to this time indicated that the structure had possibilities that were not yet proven by the development undertaken. The Raddatz Corp., headed by Salt Lake City people who are successful operators in the Florence Field and in Texas, made a deal with the Standard Oil Co. of Colorado whereby it acquired 1,000 acres at Berthoud. The last named company retained an interest in the well drilled in today, but the Raddatz Corp. is the operating company with R. B. Hollandsworth in charge.

The Raddatz well topped the Muddy sand at 3,772 feet, or 22 feet deeper than in the Midwest test. It showed for 1,500,000 feet of gas per day. Then it was drilled 5 feet into the sand and started flowing by heads. It was making heads at last reports about every two hours and producing around 50 bbls. at each head. However, there is 300 feet of open hole below the 5-⅛-inch at 3,460 feet and it is caving, though this has not entirely shut off the oil.

No report has been received on the quality of the oil, but in one of the other wells it was a high grade green crude of about 40 degrees gravity. The field is just 3 miles west of the town of Berthoud.

Weld-Morgan Counties

The Reiter-Foster Oil Corp.'s No. 1 Ida Johnson, C NE NW, Section 24-6n-61, on the Greasewood Dome, which came in August 25 in a sand in the Dakota formation at 6,642-52 feet, 1,000 feet north of the Platte Valley Petroleum Co.'s No. 1 Patterson, the discovery well, is flowing better than 600 bbls. per day according to a telephone message from Fort Morgan following the running of the tubing. On August 27, at 7 a.m., the wel made 699 bbls. natural in the first full 24-hour test after drilling into the sand. It gradually declined until September 8, when it made 171 bbls. in 24 hours.

This decline was not alarming as the oil was being lifted more than 6,600 feet in the 7-inch pipe and after reaching the surface flowed through a 4-inch pipe to tankage 2,000 feet away elevated 41 feet above the derrick floor.

Additional tankage has since been erected nearer the well and the 3-inch tubing was landed within a few inches of the bottom without a packer. The well failed to flow.

President Paul Ache then directed the drillers to raise the tubing 400 feet for experimental purposes, and while he has received no additional confirmation, unofficial information is that the well responded and began flowing at the rate of 600 bbls. a day, though back pressure had not yet been applied with a packer. In the meantime a tubing swab has been ordered from the East with the intensions of swabbing it to get the flow of oil opened up. It was planned at the start to do some experimenting to determine the best place to set the tubing. It is

quite certain that the well has not yet demonstrated its capacity.

Discovery Well Deepened

No. 1 Patterson, the discovery well, 1,000 feet to the south of the Ida Johnson well, which showed a decrease in production following the bringing in of the well to the north, has been deepened 8 feet to 6,674 feet and is reported to have come back with a flow of better than 400 bbls. a day and no water. This well averaged 350 bbls. daily with almost no variation following its completion last October down to the bringing in of the Ida Johnson. It then went off until on September 8 it made only 144 bbls. The tools had not been run since completion and it has 40 feet of open hole. It flows by heads through the 4¾-inch casing and the relieving of the gas pressure through the Ida Johnson well is supposed, also, to have caused it to sand up.

Direct communication with the field will soon be established as the Mountain States Telephone & Telegraph Co. has begun the stringing of a telephone line. Delay is being occasioned by the lack of supplies in this territory, but this is expected to be remedied shortly as the principal supply houses have their representatives in the field and some of these are getting sites, or building in anticipation of an increasing business. Drilling operations were practically at a standstill for a few days due to the breaking of a rod in the pump that lifts water from Jackson Lake to the field. Temporary arrangements were made and operations resumed.

Next Completion Likely Continental's

The next completion in the field is expected to be the Continental Oil Co.'s No. 1 Briggs, C SE SW, Section 13-6n-61, which has reached a depth of 6,630 feet and is preparing to run and cement the 7-inch. The core was run in this well through the Timpas lime for the benefit of the geological department so as to obtain more definite information on this marker. It is generally believed that this well, which is an offset on the north to No. 1 Ida Johnson, is running a few feet higher. The Continental's No. 1 Gadbois, C SE SW, Section 24-6n-61, is shut down at 4,882 feet on account of water shortage, but is preparing to resume while the Briggs well is being cemented.

The Greeley Oil Co.'s No. 1 Gadbois, C NW NW, Section 25-6n-61, is rigging up.

The Aztec Corp.'s No. 1 State, C NE NE, Section 16-6n-61, is building derrick. This company's No. 1 Kirchoff, C SW NE, Section 1-6n-61, is an abandoned location.

The Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, is bottomed at 3,800 feet and waiting for water. The same company's No. 1 William Wilson, C NE SE, Section 24-6n-61, is a location. Rotary rig for this operation is at Orchard.

The Ohio Oil Co.'s No. 1 Gadbois, C SW SE, Section 24-6n-61, and No. 2 Gadbois, C NE NW, Section 25-6n-61, remain locations only.

On the Morgan County side, the Independent Oil & Refining Co.'s No. 1 Schmidt, C NE NW, Section 19-6n-60, has derrick up. This company was incorporated under the laws of Colorado this week with an authorized capital of 20,000,000 share of stock at 10 cents par value. The directors are P. T. Geyerman, C. G. Jenks, W. G. Arlt, O. F. Kraft, L. A. Thorn, A. C. Grandbouche, Chaney Fox, Franklin Kalka and R. J. Husely.

The Tulsa-Fort Morgan Oil Co. is moving in material for its No. 1 Emil Smith, C SE SW, Section 18-6n-60. Roy Mead, of the Mead Drilling Co., of Oklahoma, has the contract. The company has 520 acres on the Greasewood structure.

Outside of Greasewood District

In Morgan County, outside of the Greasewood district, the Colorado Associated Oil Co.'s No. 1 Pumphrey, C SE SE, Section 14-4n-58, North Fort Morgan Dome, spudded with proper ceremonies on September 5 in the presence of about 1,000 people. It is drilling out cement after setting the 15½-inch at 158 feet. There is ample water supply from springs on the property for the rotary. The Olson Drilling Co. has the contract and the Midwest Refining Co. is furnishing the rig. William Myers and Leslie Park, both well-known oil men in this territory, are at the head of the company, and Sidney H. Keoughan, former president of the Continental Oil Co., is a director. The company has 17,000 acres in the block and this is the pioneer test.

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morga Dome, which has been bottomed at 5,350 feet waiting for the completion of a water well, is ready to resume. Unofficial reports are to the effect that the sections at this location are thinning out somewhat, that the hole is through the Niobrara and that the Dakota may be found higher than first expected. Coring is in progress. It has been logged at around 5,600 feet. If this well should come in as a producer, it will open up development in northeastern Colorado on a much bigger scale than that started by the Greasewood operation.

The Badger Creek Oil & Gas Co.'s No. 1 Kent, SW cor., Section 2-2n-57, Badger Creek structure, is shut down at 1,200 feet and reported negotiating a contract for the installation of rotary equipment.

Adams County

The Hills Dome Lease Development's No. 1 Hills, SE cor., Section 27-3s-64, is preparing to resume about September 15 at 3,720 feet.

Arapahoe County

The MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, is bottomed at 5,835 feet and cleaning out to the top of the lost tools.

Boulder County

Julius Williams' No. 1 Degge, an operation not heretofore reported, in the NE SE SE, Section 6-1n-71, northwest of the old Boulder Field, spudded on September 5 in an 8-inch hole and is drilling at 300 feet with the objective expected at around 2,300 feet.

Park County

The South Park Oil Co.'s No. 1 Milligan, NE cor. SE, Section 13-8s-76, Jefferson district, is drilling at 2,420 feet after lowering the 6⅝-inch to 2,410 feet. It is bottomed in lime and according to the driller's report, is near the top of the Dakota and showing some gas.

Rio Blanco County

The California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, is drilling at 2,154 feet in shale, and the Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Picenace Creek, is running the 13⅜-inch at 1,405 feet in gray shale.

Archuleta County

The Standard Oil Co. of California's No. 1 Fitzhugh, NW SE SW, Section 34-33-1e, Chromo Dome, has recovered tools and is drilling at 560 feet with the 10-inch at 506 feet. Same company's No. 1 Brooks, NW cor. NE, Section 2-32-2e, Price Dome, is preparing to resume at 60 feet.

LaPlata County

W. J. Irwin & Co., who recently took over the Murchison Oil Co. operation in its No. 1 Doescher, SW cor. NW, Section 29-33-13, Dry Mesa, is bottomed at 2,470 feet with the tools stuck at 1,750 feet and the hole may be abandoned.

WYOMING

Washakie County

One of the most important wildcats drilling in Wyoming at the present time is nearing completion. This is the Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, on the Neiber Dome, in the southern part of the Big Horn Basin, which is being put down under an agreement with Grebo Royalties, Inc., which turned 60 per cent of its acreage to the Ohio company. Around the rim of the Big Horn Basin are numerous oil and gas structures, but structures lying in the deeper part of the basin have received little attention until the last two years. Two of these deeper structures tested, the Badger Basin Dome on the Wyoming side and the Dry Creek Dome on the Montana side, have been proven productive.

The Ohio company started its Neiber Dome well early this year with the intentions of going 8,500 feet, if necessary, to test the Frontier and Dakota series. The Noble Drilling Co. has the contract and the rig is one of the largest and strongest in Wyoming. Rumors are current that the Ohio company is on the eve of making an important strike, but the company is giving out little information and only the rumors are responsible for the more optimistic reports. One of these is to the effect that cores were removed from the well without being taken from the core barrel and that following this, the company has been delivering tubing at the well site. Reports through official channels are to the effect that the well is bottomed at 7,325 feet; that the 7-inch was cemented on top of the second Frontier at 7,260 feet; and that a test is being made. This same source has reported shows of gas in the cores.

Big Horn County

Another completion in the Madison lime on the Garland Dome is reported in the Portland Association, Inc.'s No. 1 Beartook, SE NE SE, Section 29-56-97. It is estimated at 1,000 bbls. of oil and 30,000,000 feet of gas with a pressure of 1,800 pounds. The total depth is 4,304 feet, about 411 feet in the lime. It is just to the north of the Ohio Oil Co.'s No. 1 Easton, SE cor., Section 33. The sections in this area are mostly broken up into lots and descriptions are somewhat confusing. The Ohio well, the discovery in the Madison, was drilled to 4,442 feet, around 700 feet into the pay, and is estimated at better than 5,000 bbls. a day. It has been shut in since completion last year. The oil is a heavy grade with asphalt base. The Portland Association's well was started by the late S. C. Ferdig and associates, and later was taken over by the new owners and a change made to rotary under a contract with Paul Stock, who drilled the well. F. T. Griffith, president of the Portland Electric Power Co., Portland, Ore., is in charge. The tract consists of 80 acres held by the Montana-Wyoming Oil Co.

The other completion is the Utah Southern Oil Co.'s No. 3 Government, NE cor. SW, Section 29-56-97, a mile to the northwest of the No. 1 Easton. It is bottomed at 4,326 feet and its capacity at this depth through tubing, on a short gauge, is placed at 1,500 bbls. of oil and 25,000,000 feet of gas. It is being cleaned out and further tested. The company has a large acreage on the structure surrounding this well.

Park County

The Midwest Refining Co.'s No. 21 Rosenberg, NE SE NE, Section 26-58-98, Frannie Dome, is drilling at 2,025 feet in black shale.

Hot Springs County

The Hamilton Dome, which has been shut in for a number of months, is being opened up and put on production. The oil will be run to the Midwest Refining Co.'s refinery at Greybull where a unit for the handling of a larger output of heavy oil was completed recently. The Hamilton Dome has a developed capacity of 1,200 to 1,800 bbls. daily, mostly owned by the Argo Oil Co. and the Empire State Oil Co.

Natrona County

The Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, is still cleaning out in an effort to obtain a test of production in the Muddy sand.

Niobrara County

The Ohio Oil Co.'s No. 4 Converse Sheep, SE SW SE, Section 32-36-65, Lance Creek Field, the discovery well in the Sundance formation, which was completed last fall as a 600-bbl. well in 13 feet of the upper Sundance, has been on production for several weeks and was allowed to produce 500 bbls. per day. The oil at first was reported to be 36 degrees gravity, but subsequently a refinery test showed an improvement in the grade up to 42 gravity. It has again been shut in. No other wells have been drilled to the Sundance in this field. Another test is planned, however, by H. O. Emery and B. J. Irvin, of Douglas, in the eastern part of the field. Location has not been announced, but it will be not far from a well drilled years ago near the center of Section 28-36-64, which has been on production for 12 years. It is owned by the Argo Oil Co., and strangely, no other producer has been drilled in that vicinity, which is 3 miles to the east of the producing area. One other well in the field, the Indian Petroleum Co.'s No. 1, NE NW NE, Section 7-35-65, is being deepened to the Sundance. It is bottomed at 4,175 feet, close to the top of the Sundance, and is fishing for underreamer lug.

Weston County

No completions were reported in the Osage Field. New operations starting are Clark and others' No. 1, NW NE NE, Section 15-46-64, and Sandell and others' No. 1, SE SW SE, Section 12-46-64, both of which are rigging up. The Chadron-Osage Oil Co.'s No. 14, SE cor. SW, Section 14-46-64, set casing at 900 feet, and Tom Don's No. 3, NW SW SE, Section 23-46-64, set casing at 1,000 feet. Bradley-Manewal's No. 10, SE NW, Section 20-46-63, is running casing on top of sand at 1,250 feet, and the Central Oil Co.'s No. 1, NW cor., Section 26-46-64, is drilling below 1,300 feet. Carl Cundy's No. 2, NW NE NE, Section 31-46-64, is drilling at 200 feet, and the Riggs Oil Co.'s No. 1, SE cor. NE, Section 16-46-64, set casing at 2,350 feet.

Fremont County

The Producers & Refiners Corp.'s No. 2, NW SE NW, Section 33-34-92, Muskrat Dome, which is plugging to abandon, has been plugged with cement to 638 feet. It was drilled to 6,081 feet, and probably tested the Sundance. It had some gas in the upper Frontier, followed by water in the lower Frontier. There are three major fault blocks on this structure and this test is in the block to the west of the one in which the big gas well in the Frontier was discovered two years ago.

The Kinney-Coastal Oil Co.'s No. 1 Chatterton-Weeks, C SW NE, Section 22-3n-1w, Pilot Butte, is drilling at 3,090 feet in hard lime and sand with the Muddy at 3,600 feet as the first objective. The location is half a mile to the northeast of its No. 1 Dykeman, completed two years ago as a big gas well.

Carbon County

The Prairie Oil & Gas Co.'s No. 1 Bunker Hill, SE cor. SW, Section 29-27-89, is drilling at 4,420 feet. It is a rotary operation with the Sundance at 7,500 feet as a possible objective. The Producers & Refiners' No. 4, SW cor. SE, Section 7-26-89, Wertz Dome, upon which work was resumed last week at 3,398 feet, is again shut down. The Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, is drilling at 3,695 feet in shale.

MONTANA

Glacier County

Two completions were reported in the Cut Bank Field, adding some new territory to the gas area and 24,250,000 feet of gas per day to the reserve. The operations are in charge of L. B. O'Neil, as agent for the Montana Power Co., which is completing its gas system to Butte. O'Neil's No. 11 State, C NE NW, Section 11-35-5w, found the sand at 2,675-95 feet and was completed at a total depth of 2,715 feet, for 10,250,000 feet a day. It extends the proven area on the south about 1 mile. His No. 2 State, C NE SW, Section 33-36-5w, found the sand at 2,860-2,900 feet and gauged 14,000,000 feet. Two new operations were reported in O'Neil's No. 1 Whetstone, C SE NW, Section 10-35-5w, which is spudding, and the Brownling Development Co.'s No. 1 Reickhoff, SE cor. NE, Section 3-34-6w, in the southwestern area several miles from the nearest producer, building rig. Status of the O'Neil drilling wells is a follows: No. 1 Teterug, CSL SW, Section 26-36-5w, drilling at 1,100 feet. No. 2 Michaels, C SW NE, Section 33-36-5w, drilling at 2,650 feet. No. 1 Teterud, C SE, Section 35-36-5w, drilling at 2,100 feet. No. 1 State, C NE, Section 9-35-5w, drilling at 1,809 feet. No. 1 Peterson, C, Section 21-35-5w, drilling at 1,200 feet.

A new operation to the south of the Cut Bank Field is Thomas and others' No. 1 Miller, C NW NW, Section 28-

(Continued on Page 81)

Chicago Market in Muddled Condition

Although Demand for Gasoline Is Exceptionally Strong, Prices Tumble Precipitately as Result of Cheap East Texas Oil

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Sept. 14.—Now you see them, now you don't, and so the gasoline tank car markets go making holiday for the astute speculator and a nightmare for the refiner and the marketer who know how to handle bad situations if they will just stay put for a long enough time to work out an operating schedule. The price decline has been even more precipitate than the recent advances and Monday we have the unusual situation of a major company quoting open market prices on the lowest level of the price ranges with a posting for U. S. Motor gasoline of 3 cents.

Although the hocus pocus theme is introduced here, Chicago oil trade circles are not at all mystified at the turn of events. The warning came weeks ago when Mid-Continent crude oil storage at the larger refineries made it possible for East Texas and other refiners to carry on their marketing activities after their own plants were closed down. One refiner who closed down his plant and notified his buyers that they would have to get gasoline elsewhere for the duration of the martial occupation of the East Texas area soon discovered that he could continue to supply his customers profitably by buying. That was when the gasoline tank car markets were leaping upward toward a 6-cent low. The "pickings" were great, while they lasted, but who would have thought that prices would take such a swift tumble?

Large volumes of gasoline were moved into the Chicago district near the close of last month. Distributors and jobbers had their eye on the Labor Day holiday demand and filled up their storage. Back of the flood of gasoline in Chicago is still more material at various points in the Mid-Continent where large-scale operations have been built up and where refiners are anxious to move gasoline at prices that would intrigue the buyer if he had some place to store the material.

Conflicting Considerations

Apparently out of phase in the situation is the fact that figures compiled by the American Petroleum Institute continue to show major declines in gasoline stocks for the country. Another anomaly is the fact that a major refiner operating in the Mid-Continent is reported to be in need of gasoline. That this refiner does not promptly avail himself of the current low markets would seem to discourage the view that the bottom has been reached and that the present market collapse represents a momentary lull before the improved crude oil markets can take effect after being lost sight of during the mad rush to get rid of material.

The demand for gasoline in Chicago district is all that it should be. The weatherman is conspiring with the gasoline dispensers and has contributed an unseasonal heat wave that has been unbroken since the last week of August. Motorists seeking the cooling breezes line the highways two and three abreast from early morning until late at night and it cannot be complained that the public is stinting in its burnt offerings for the salvation of the industry.

If the industry has adopted the policy of selling greater volumes of material for less money, the success of the venture is undeniable. The price cutter has returned to his old stand at the bulk plant and service station and the prices at the latter's place of business is fetching the trade.

The warm weather has not exactly softened the burning oil tank car markets, which at present are more or less nominal anyway, but domestic users are not interested yet. A few downward revisions are noted in the gas oil and fuel oil markets. Bright stocks and neutrals have picked up to make the only bright spot in the Chicago district refined products markets, unless the fact that fuel and gas oils are holding up better than the gasoline markets is a bright spot.

Spot Market Returns

Now that the gasoline tank car markets have dropped to the level of pre-East Texas shutdown days the ever versatile jobbers and distributors can set about to make the necessary readjustments. The tank wagon postings are unchanged, the quantity discount and the marginal spread are unchanged, but the tank car markets are more than 2 cents under the recent markets which made the contract with a refiner so inviting. Therefore, when gasoline on contract moves at 3.25 cents or even 3.09 cents a gallon, and the spot market offerings are progressively shading down from those figures, the proper readjustment is obvious and Monday the telephones that have been gathering cobwebs were announcing the best revival the open markets could make under the circumstances.

As stated above, the distributors and jobbers are fully satisfied with their current stocks in storage, ranging from one to three months' supply, and their reluctance to keep these stocks at their highest level is both an indication of their attitude toward the markets and a lever which keeps control of the situation in their hands. Not that a bear market is in itself more profitable, but that it is more comforting to have as little capital as possible tied up in material when business is acting so skittish and when the seasonal demand for the principal product is in its autumn.

Thoughts of Stabilizing Vanish

At the close of last week it was thought that the gasoline tank car markets would be stabilized at 3.5 cents, where the marginal spread on most of the contracts would continue to operate to hold up the volume of this business. Saturday it became obvious that it could well figure as the high of the U. S. Motor gasoline price range, when one of the major interests made it known point blank that it considered 3 cents to be the going spot market price. The trade has not been looking for anything like this and Monday speculation was rife as to what it was all about. Summed up briefly the situation Monday was this: Gasoline was offered freely in any quantities and at prices which would have caused a stampede last week, but buyers had all the material they wanted and were not participating in the buyers' market.

Tank Wagon Unchanged

The tank wagon and service station price fluctuations which have featured the markets in the East have not been paralleled in this territory, except in the matter of raising the price of the third-grade gasoline half a cent. The trade has ceased to talk about possible changes in the tank wagon and service station postings, as the logical move has veered around from an increase to a decrease in these schedules as the result of the tank car market declines.

Tank car gasoline prices Monday in the Chicago district were reported much weaker than at any point in the Mid-Continent. Factors such as freight differential, special Q. D. A.'s and other special features of the market in this district serve to exaggerate the market developments elsewhere. Added to this is the fact that Chicago district has been selected as the logical destination for gasoline by every refiner who is in a position to move material to this point.

U. S. Motor gasoline Monday had declined more than a cent from last week and more than 2 cents from the previous week. The reopening of the East Texas Field coincided with the break in the gasoline markets and the latest dispatches to the effect that drilling in this area will be restricted to halt the mounting overproduction of crude oil failed to register the least effect.

Keen Open Market Competition

Quotations on the U. S. Motor grade ranged from a low of 3 cents up to 3½ cents, with little material moving at any price. Some of the major and smaller refiners were holding up prices of 3¾ to 4 cents, but admitted that they were not getting business. Elsewhere the process of shading prices was in full swing and the work of going after one and two-car orders had all the aspects of the manner in which refiners make tenders to large city and county commissions on huge road oil contracts.

The higher test gasolines were affected to a similar extent. The weather has been such that demand for the better grades is not active, comparatively. The antiknock material continues to hold a position of half a cent above the U. S. Motor grade. However, an advance beyond the half cent premium is expected due to the fact that at the points where the larger part of the supply of this material has been forthcoming a crude oil shortage is beginning to be felt acutely. The 60-62, 400 endpoint gasoline is winning popularity among the cut-price station operators, serving as the better trackage station grade and selling for 2 cents under the price of the regular grade of the major retailers. The tank car price range for this material Monday was 3⅛ to 3⅞ cents, an unusually wide spread with the going market around the 3¼-cent level.

High Tests Inactive

The heat wave which inaugurated the month of September and continues to disturb the propriety of seasons is working against any advantage the high-test gasolines and the natural gasoline blends would begin to show at this time a year in the district. The 64-66 gravity gasoline of 375 endpoint is quoted at prices ranging from 3½ to 4 cents, while the 68-70 gravity, 360 endpoint material is offered at from 4 to 4½ cents. The natural gasoline blend is quoted nominally at 3 cents. The resurrection of the trackage station as an important factor, however, may serve to establish a going market in the blended motor fuel before many days go by. The 50-52, 450 endpoint naphtha is quoted at from 3 to 3½ cents and there is practically no movement of this material.

What may develop into a major scale price war in connection with naphtha contracts was forecast Monday in East St. Louis where one of the major companies announced that it would allow buyers 2 cents off tank wagon posting in quantities of 200 gallons or more. Other majors were allowing 1 cent off the tank wagon in quantities of 150 gallons. When the 2-cent discount became known one of the largest operators in the territory promptly announced that 2 cents would be allowed off the tank wagon price in quantities of 150 gallons. Why East St. Louis was selected for the tiff between major companies on naphtha contracts and not St. Louis, Kansas City or some other large center is not explained, but there are indications that the fight will be carried thence shortly. In Chicago the 2-cent discount is already in effect.

Too Much Latitude

It is pointed out that the above offers an example of the dangerous policy adhered to by some major interests in permitting their representatives free rein in carrying out the marketing programs of their companies. Chicago, to mention but one of the major points in the territory, offers numerous examples of the latitude given to representatives. Some of these representatives have written special clauses into contracts offering ridiculous marginal guarantees, protection in local price wars and other like inducements, apparently without thought that the representatives' company may need protection.

Last week saw the restoration to normal of the gasoline tank wagon and service station prices at Detroit where the price war has become a chronic affair. Elsewhere the recently leveled retail markets on the third grade showed deep gulches. The following prices are exclusive of state gasoline tax: At Topeka the service station and tank wagon markets on Stanolind Blue dropped from 8.4 to 6.9 cents; at St. Joseph, these markets were cut from 9 to 6.9 cents; at Des Moines, the reduction was from 10 to 8.9 cents, and at Sioux City, the decline was from 9.6 to 7.9 cents.

In Chicago the renewed activity of trackage station operators, aided by the tank car market conditions, is expected to bring about a reduction in the third-grade postings here. It is not expected, however, that the regular grades will be affected. The tank wagon and service station price is now 8.5 cents plus tax, while price cutters are selling at prices ranging from 6 to 7.5 cents, plus tax.

Gasoline Tax Evasion

The fight against the gasoline tax evaders shows no signs of letting up, and the trade is looking forward to what will happen on October 5 when John Connors and Poole Harrison appear before the court to answer charges of evading gasoline tax payments amounting to $125,000. Gov. Louis L. Emmerson has named his fact-finding commission which is to survey the gasoline bootlegging situation in Illinois and devise effective means of stopping evasion of the motor fuel levy. Appointed on this commission are Paul Samuell of Jacksonville, formerly supreme court justice; Omer N. Custer of Galesburg, chairman of the state tax commission, and Frank V. Martinek, assistant vice president of Standard Oil Co. and chairman of the Gasoline Tax Evasion Committee recently formed by representatives of Pure Oil Co., The Texas Company, Sinclair Refining Co., Standard Oil Co. of Indiana, and the marketing division of the American Petroleum Institute.

Kerosene Markets

The kerosene markets Monday were slightly easier and there was no change in the demand situation. The kerosene that might have gone to the farmers for the fall plowing will be replaced with gasoline which, tax exempt, is selling under the posted kerosene tank wagon price. Prices Monday had moved down an eighth of a cent, making the range for the 41-43 water white material 1⅞ to 2 cents, and for 42-44 water white kerosene, 2 to 2⅛ cents.

Fuel Oils and Gas Oils

The fuel oil and gas oil markets have reflected only slightly the disturbed condition in the gasoline markets. The material sought for running to the cracking units continues strong and refiners are finding that they have little if any of this material to sell. Large quantities of high pourpoint oils are available but

(Continued on Page 79)

CLASSIFIED WANTS

Read by Oil Men Everywhere

RATES

The rates for Classified Advertisements are 35 cents a line for the first insertion and 25 cents a line for each additional insertion. Six words usually constitute a line. The following table will enable you to figure the cost of your advertisement:

	1 time	2 times	3 times	4 times
3 lines	1.05	1.80	2.55	3.30
4 lines	1.40	2.40	3.40	4.40
5 lines	1.75	3.00	4.25	5.50
6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
10 lines	3.50	6.00	8.50	11.00

Compute white space at the above rates.

For rates on Classified DISPLAY see opposite page.

Mail your Classified Advertisement to

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

FOR SALE—EQUIPMENT

OIL EQUIPMENT FOR SALE
2 only, 2" Vertical Check Valves.
2 only, 2" connection Bowser Air Release Chambers.
5 only, 2"x1¼" Combination Air Chamber and Checks.
1 only, Penflex Barrel Filler.
5 only, 6'x1½" Flexible Metallic Hose with connections.
12 only, 5'x1½" Flexible Metallic Hose with connections.
2 only, 2" connection Wayne Oil Meters No. 318.
1 only, 1¼" connection Bowser Registering Meter automatic for predetermined quantity, Serial No. 100,304.
1 only, 2" connection Bowser Straight Registering Meter, Serial No. 100,303.
1 only, Bowser 2"x1½" 120 R.P.M. belt-driven pump, Serial No. 100,306.
2 only, Federal Pressure Gauges.
1 only, Ashcroft Pressure Gauge.
1 only, Wooden Pulley, 8" dia. 6" face.
1 only, Wooden Pulley, 8" dia. 3" face.
1 only, Steel Split Pulley, 30" dia. 5" face.
2 only, Steel Split Pulley, 10" dia. 7" face.
1 only, Steel Split Pulley, 20" dia. 5" face.
1 only, Steel Split Pulley, 16" dia. 5" face.
2 only, Steel Split Pulleys, 6" dia. 4½" face.
1 only, Steel Split Pulley, 6" dia. 3¼" face.
2 only, Steel Split Pulleys, 4½" dia. 3½" face.
2 only, Shaft Hangers with 2" bearings.
5 only, Shaft Hangers with 1½" bearings.
The list price of the above is $1,377.50.
This equipment is in first-class condition and has been used less than one year.
Give us a bid for all or part of it. Photographs will be forwarded of any individual piece of equipment if wanted.
Address Box E-566, The Oil and Gas Journal, Tulsa, Okla.

NEW LATEST Model 5-Ton White Truck, never used, with Mounted Braden Type B-15 Winch. Addres Box E-553, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE for a low price. A gasoline powered Sullivan Diamond Core Drill. Write Box E-492, The Oil and Gas Journal, Tulsa, Okla.

I HAVE FOR SALE 4 pairs of 4-inch Cline laying tongs, also one chain tong, all which have been only used on a 5-mile line. I can ship them all C.O.D. at once for $40. Albert Kalo, P. O. Box 223, Columbus, Ohio.

STAR 38 TRACTOR MACHINE for trade for Standard Cable Tools.
J. C. Bentley,
McAlester, Okla.

FOR SALE—EQUIPMENT

OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

200 Amp. Lincoln Arc Welded 220/3/60. Practically new. Price $425.00. 100 Amp. Federal Butt Welder: 220 V. 60 cy. Complete. Excellent condition. $500.00. 12"x14" Chicago Pneumatic Air Compressor. $350.000. 46"x18' Niles Lathe, Quick change; $1,250.00. Also, large stock of lathes, shapers, mailing machines, pipe machines, bolt threaders; etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, O.

FOR SALE CHEAP—10 reshopped 7-inch O. D. W. K. M. (law pattern) 3,000-pound test screw drilling gates. Purchasing Department, I. T. I. O. Co., Bartlesville, Okla.

FOR SALE: Equipment for six wells on salvage basis, two salvaged, four pumping twenty barrels daily, located West Texas. Write R. R. Hoskins, Fifty-nine thirty-three Wakeforest Rice Court, Houston, Texas.

EQUIPMENT WANTED

WANTED TO BUY one used set of official A. P. I. Cable Drilling Tool Joint Master Gauges size three to five inch. Answer Box E-561, The Oil and Gas Journal, Tulsa, Okla.

BUSINESS OPPORTUNITIES

EAST TEXAS CRUDE OIL
Accessible to pipe lines and loading racks, offered at prevailing market prices for immediate or future delivery. Inquiries from refiners, marketers and speculators invited. Steel storage and insurance provided at current rates.
J. G. REAVES,
222 North Broadway,
TYLER, TEXAS.

DRILLING BLOCKS IN SOUTHWEST ARKANSAS
Will furnish drilling blocks in South West Arkansas on approved sub-surface geological structures to any responsible operator who will drill a well thereon. This acreage has the recommendation and approval of the State Conservation Department of the State of Arkansas. Can furnish acreage in neighborhood of the Lenz discovery well in Miller County and the Bradley pool in Lafayette County.
If interested write C. E. Harris, State Conservation Agent, Room 225, State National Bank Building, Texarkana, Ark.

WILL PAY cash for large producing Gas property. Owners only. Address Box E-557, The Oil and Gas Journal, Tulsa, Okla.

SHALLOW PRODUCTION 250-600 ft., 3 sands, Hancock County, Ky. 1800 acres with 4 gas wells, two oil wells. G. Taylor Yewell, Owensboro, Ky.

OFF-SET ACREAGE TO LET on drilling contract. Excellent proposition.
J. C. Bentley,
McAlester, Okla.

AMERICAN ENGINEER residing in Paris wants to sell crude and finished products in France. Write Box E-564, The Oil and Gas Journal, Tulsa, Okla.

GOLD MINE FOR SALE.
WRITE
Max Kahler Hillsboro, New Mexico.

$5.00 PER ACRE buys lease and three-fourths perpetual royalty on 2,500 acres, Foard County, Texas. Showing best of structures. B. J. Smith, Colorado Springs, Colo.

TO INDEPENDENT OIL OPERATOR
If interested in opening a new oil field of high grade lubricating oil from 400 to 1,000 feet. Write me for full particulars. Well Driller, P. O. Box 195, Three Rivers, Tex.

BUSINESS OPPORTUNITIES

$12.50 Buys deed part oil 2 Oil Royalties City Pool. Ed Milam, Dept. 20, Oklahoma City, Okla.

$15.00 buys deed part oil 160 acres Oklahoma County—BIG PAY. Joe Milam, Dept. 46, Oklahoma City, Okla.

200-ACRE Farm, Sell or Drill, Northern Fayette Co. Geologist Report, Salt Dome, or Structural High, Oil and Gas possibilities less than 2,000 feet, Sulphur Seepage Dome probably, Gas Seeps, Tons of various minerals, Fullers, Silicates, Volc Ashes, Lime like sand, etc. Price $35 per acre, if can retain ¼ of mineral right adjoining lease. "Land and Royalties of Natural Gas, undeveloped, Terrific Seepage day and night." To sell. Come see for yourself, before you invest a penny. Write or See. A. H. Becker, Jr. (owner), R. 2, Box 65, Carmine, Texas.

LEASES—PRODUCTION

OKLAHOMA CITY Oil Royalty and Leases for sale. Write or wire W. H. Ivy, 1001 Perrine Bldg., Oklahoma City, Okla.

We offer Producing Gas properties in Ky., O, and W. Va.
ED E. WALKER & CO.
519 Madison Ave. Covington, Ky.

17,000 ACRES OIL AND GAS lease in south part of Culberson County, Texas. Will sell on bottom hole money at $6 per acre. Money put in escrow in bank until you have struck oil. Which you will do inside of 3,000 feet.
Post Office Box 1343
Big Spring, Texas.

ROYALTIES—PRODUCTION

FOR SALE, one-half Royalty under 116 acres. Well starts on tract two weeks. Also other leases and royalties, low rentals. G. F. Mangels, Magdalena, New Mex.

ROYALTIES on Greasewood Dome. Weld County, Colo. New high gravity gusher oil field, special service to Royalty Brokers, Investors and Salesmen. In U. S. and Canada. W. C. HALLAM, 802 Patterson Bldg., Denver, Colo.

UNUSUAL OPPORTUNITIES
FOR ROYALTY INVESTORS
AND DISTRIBUTORS.
THE MERCURY COMPANY
Philtower Building, Tulsa, Oklahoma.

ROYALTY BROKERS AND INVESTORS
Let Valuation Engineer buy royalties for you. Prices now lowest in history. Twelve years experience appraising oil properties. My plan assures profitable investments. Write R. B. ALLPORT, Hunt Bldg., Tulsa, Okla.

ROYALTY, GREASEWOOD FLATS, Colorado, 2½ miles SE of Ida Johnson well, 1½ per cent on 280 acres; $1,500 or part. M. Averill, 1351 Grant St., Apartment 12, Denver, Colo.

JAMES B. McANALLY
Speculative and Investment Royalties
Hunt Building, Tulsa, Okla.
Service to dealers, Oklahoma, Kansas and East Texas.

ROYALTIES IN S. W. ¼—34 and S. E. ¼—35-15N. 3W and S. W. ¼—11-14N-3W. Send for geology. D. J. Perry, Edmond, Okla.

AM SPECIALIZING in the sale of gas production and gas royalties in the Texas Panhandle, the largest gas field in the world. Thirty years in business here, and my business is good. Learn the reason. Wire or write E. B. Reeves, Alanreed, Gray County, Texas.

CLASSIFIED DISPLAY RATES

The rate for Classified **Display** Advertising set in similar style to this Ad or in two Column style is as follows for each insertion:

1 inch	1 Time	$5.00
1 inch	13 Times	4.50
1 inch	26 Times	4.00
1 inch	52 Times	3.50

Rates for Classified without display shown on opposite page.

One point borders and ten point capitals are allowed, larger type not accepted.

Changes in copy must be in our office 10 days in advance of publication date.

Mail your advertisement to the Largest Classified Section in the Oil Industry.

THE OIL AND GAS JOURNAL
TULSA OKLAHOMA

ROYALTIES—PRODUCTION

FURNISHING A REAL SERVICE

to the people of the northern and eastern metropolis who are interested in the oil industry—since 1920.

J. A. Wolf
OIL ROYALTIES
208 So. LaSalle St.
Chicago, Ill.

PRODUCING ROYALTIES
Specializing in East Texas
John L. Dickson, Box 1037, Tulsa, Okla.

WILL PAY CASH for producing Royalties anywhere. Send ful information. Merrick C. Ham, Pres., Lamont & Co., Ltd., 1107-8 Bartlett Bldg., Los Angeles, Calif.

MID-CONTINENT OIL ROYALTIES
Royalty Sales Company
Suite 523
105 North Clark St.,
Chicago, Ill.

RITZ-CANTON Pool oil Royalties for sale on proven and semiproven up leases, big play now on. Box 26, Galatia, Kansas.

FOR SALE—MAPS

M-A-P-S

We have the only complete line of general area, lease ownership and oil development maps in East Texas.

Prices on Request

ZINGERY OIL MAP CO.
Fair Bldg. Fort Worth, Tex.

KANSAS OIL FIELD MAPS
The Kansas Blue Print Co.
Wichita, Kans.

INCORPORATIONS

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

BONDS

BONDS: of old extinct railroads. Many other corporations, states, etc., bought and sold. Send samples for examination. Amos Poe, Andrews Bldg., Dallas, Texas.

Eastern Prices Continue Upward Trend

Gasoline Market Well Established at Higher Levels and Definite Firmness Has Developed in Fuel Oil Outlook

By A. E. Meckler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Sept. 14.—Steady improvement in the statistical position featured the East Coast refined products market during the last week and the price trend is still toward higher levels on the major products. Recent fractional advances in refinery gasoline quotations have been thoroughly consolidated, and the market is now well established at the higher levels. The improvement in gasoline is not confined alone to the New York harbor refining area, but has spread likewise to other refining points on the Atlantic Seaboard, where fractional advances in prices have been posted to bring the general market in line with the higher basis ruling locally.

Definite firmness has developed in the fuel oil outlook, although the spot market position remains unchanged. A significant indication of the attitude of major marketers toward the future market was given by the opening of bids by the shipping board this week for supplying bunker fuel oil to one of the lines under its jurisdiction. The lowest bid submitted for bunkering at New York, involving approximately the delivery of 420,000 bbls. per year, was a maximum of 95 cents per barrel for 1932 and $1.10 per barrel for 1933, with one bidder quoting a $1.25 maximum for 1933. Bids for delivery at Philadelphia were slightly lower. With the present spot market at 70 cents, the 95-cent maximum bid on next year's deliveries indicates a rather bullish view regarding the outlook. Large fuel oil marketers here are of the belief that the market trend during 1932 will be guided largely by the situation in the East Texas area, and the prices quoted indicate that these interests are taking a constructive view.

Kerosene markets, which have been weak during the last few months, have taken a turn for the better, and the price trend is upward as the season of heavier consumption gets under way. Changes of general interest in the other divisions of the market are lacking.

Refinery Gasoline

The New York refinery market has led the way in a general upward movement since the turn of the month, and prices are now definitely established at the higher levels. Locally, principal marketers are quoting 6 to 6¼ cents per gallon, in tank car lots, for prompt shipment, and for delivery during the remainder of the month. The market at other points on the Eastern Seaboard has witnessed advances averaging one-quarter cent per gallon during the past week and is generally quoted at an inside price of 6 cents. Pure Oil during recent weeks has been the low seller in the tank car market at a number of points, and has been quoting one-half cent per gallon under the established market maintained by other interests at several distributing points.

Weather conditions have been ideal for continued heavy consumption of motor fuel during the past week, and tank car movement has been well maintained throughout the period. Gallonage over the Labor Day week-end period was exceptionally heavy, and East Coast refiners again drew heavily against storage stocks during the week.

Interest was shown by eastern marketers during the week by reports of further heavy bookings of California gasoline for shipment to the East Coast area. While a number of cargoes have been reported contracted for during the past few weeks, shipments of gasoline from California refinery points for the Atlantic Seaboard, via the Panama Canal, have decreased, rather than shown any gain, giving rise to the belief that the motor fuel purchased on the coast will not be shipped eastward until later on in the season, giving East Coast refiners further opportunity to improve their statistical and inventory positions by further withdrawals of gasoline from storage.

Tank Wagon Gasoline

Gallonage has been well maintained throughout the week, and the market position is vastly improved over that prevalent but a fortnight ago. Price cutting is virtually a thing of the past in the metropolitan New York territory, which up to two weeks ago was a hotbed of price competition. Stations which were posting 10 gallons for $1 two weeks ago are now firm at the "official" posted price of 16.3 cents per gallon, and apparently are doing just as much business as ever.

The stronger market which was inaugurated in New York City territory has spread to other points in New York and New England, and save for isolated instances, where price cutting is still a factor, the retail market is in better position now than at any time previously during 1931.

Strength in the refinery market and the vanishing of distressed gasoline from the Gulf Coast territory has been reflected by a marked falling off in the price-cutting activities of independent marketers, and, while some of these sellers are still 1 cent a gallon under prices posted by the major marketers, others are firm at the regular market basis. A number of independent marketers who a few months ago rejected season contracts for Gulf Coast gasoline at as low as 3½ cents per gallon, Gulf ports, are now paying substantially higher prices for spot gasoline, and thus have had their former margin, which enabled them to radically undersell the major companies and still operate at a profit, virtually wiped out.

One interesting result of the recent stiffening in the retail market situation has been the turning off of the spotlight which formerly focused on third grades. Sales pressure on third grades has virtually ceased, and, while the cheaper product can still be had, it is no longer featured in service station advertising. This does not mean that the large companies will drop their third grades, however, as some outlet must be found for the large amount of gasoline produced which does not come up to standard octane specifications.

Kerosene

The refinery market has taken on a firmer tone, and principal sellers are generally quoting the market at 5 cents per gallon for 41-43 water white in tank car lots at the refinery, an advance of one-quarter cent over previous quotations. Sinclair Refining inaugurated the advance last week. Demand for kerosene has picked up, and tank car movement has shown a gratifying increase during the week in a number of instances.

Tank wagon gallonage has likewise shown a gain during the past week and retail markets are being well maintained at posted levels. Marketers look for a substantial recovery in kerosene consumption this year, believing that many householders will utilize kerosene heaters well into the winter seasons, as an economy move, before starting their furnaces on the winter's run.

Fuel Oil

Refiners continue to quote bunker "C" oil at 70 cents per barrel, in bulk, f.o.b. refinery terminals, but market sentiment has turned definitely to the constructive side. Some talk is heard in market circles regarding the imminence of a 10-cent advance in the spot quotations, but thus far there has been nothing definite indicating that such a step is in sight for the immediate future. However, with the domestic crude oil situation firming up, one of the market's worst "sore spots" has been cleaned up, temporarily at least, with spot market recovery apparently waiting only a corresponding betterment in the position of fuel oil markets in Europe, where Rumanian and Russian competition have undermined the market structure to a serious degree during recent months.

Some curtailment in bunker oil consumption by marine interests is indicated for the balance of the year, following the announcements by major lines that they would curtail their transatlantic sailings during the next several months, but refiners hope that increasing industrial consumption will partly offset this loss in volume.

Diesel Oil

Business has been along routine lines during the past week, with refiners continuing to adhere to the posted price of $1.40 per barrel, bulk, f.o.b. refinery terminals, in spot sales.

Stocks of Diesel oil are not excessive, and with a falling off in shipments from the Gulf Coast and a resulting firming up in the price basis the market here is on a fairly firm footing.

Heating Oils

Refiners are quoting domestic heating oil, minimum 32 gravity, at 3½ cents per gallon in tank car lots, this quotation being one-half cent under the previous price. Only spot business is being taken at this level, however, and sellers are not willing to book forward contracts under the 4 cents per gallon level.

There has been a good demand for spot oil at 3½ cents, with jobbers filling their storage in anticipation of the start of the heating season. An interesting development in the heating oil market during the past season has been witnessed through the installation of oil storage tanks by many distributors who formerly specialized only in the sale of coal.

Notwithstanding current economic conditions, oil burner manufacturers have done a substantial volume of new business during the summer months, sales being stimulated both by the price reductions, averaging 20 to 25 per cent, put into effect last spring, and the more favorable financing terms which most burner manufacturers have been offering customers. The domestic oil burner manufacturers have run into considerable competition from automatic stokers, burning cheap buckwheat coal, and gas furnaces in several parts of the East.

Gas Oil

Spot business in the gas oil market has picked up a little, and the undertone appears fairly steady at 4 cents per gallon for 28 gravity plus recycled oil, in tank car lots at refinery points.

Gas manufacturing companies are drawing stocks in better volume, and refiners look for a steady increase in consumption in this field. Refinery gas oil holdings are fairly large, but refiners expect to move out considerable of this stored oil when the heating season gets under way in full volume.

Wax

Demand for fully refined grades has fallen off badly during the week under review, and the market has lost much of its recent firmness. While quoted prices have not been revised downward by sellers here, a firm bid would bring a concession of one-eighth cent per pound on any grade, and it is probable that quoted prices could be shaded by as much as a quarter cent in some instances.

Renewed selling pressure by some of the smaller eastern refiners is given as the cause for the present market reaction, while lack of new business has also been a potent factor in the market's weakening.

Export Market

Complete stagnation characterized the Gulf export market during the past week, no cargo fixtures being reported and no new inquiries for cargo lots developing. Quotations were nominally unchanged on both gasoline and kerosene.

Quiet markets were also reported for Venezuelan and Mexican crudes, prices remaining unaltered on both grades.

Recent advances in posted export prices at the Gulf have diverted considerable foreign business to Rumania and Russia. Large integrated companies, with foreign marketing subsidiaries, are still moving gasoline and kerosene out of the Gulf for shipment abroad in fair volume.

Petroleum Exports

Routine movement of refined products into export channels was reported locally during the week ended September 5, aggregate volume for the week showing little change from that during the preceding week. New business did not develop to any material extent, and the market was slowed down somewhat by the week-end holidays.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Sept. 5	Aug. 29	Aug. 22
Gasoline	85,000	220,000	90,000
Naphtha	250,000	336,000	5,000
Kerosene	58,000	210,000	13,000
Fuel oil	170,000	65,000	240,000
Lubricating oil	1,605,000	1,540,000	990,000
Petroleum, ref.	1,519,000	540,000	715,000
	Pounds		
Petrolatum	40,000	40,000	10,000
Paraffin wax	1,115,000	1,175,000	1,140,000
Refined	75,000	.....	125,000
Scale	220,000	575,000	430,000
Lubricating grease	525,000	995,000	1,400,000

There were two large cargoes cleared from New York during the week, including the Penrith Castle with 715,000 gallons of cased products for Chinese ports, and the Vacuum Oil Co. tanker Mobiloil with approximately 785,000 gallons of lubricating oils consigned to British and French ports.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended September 5 totaled 1,825,000 bbls., a daily average of 260,714 bbls., compared with 1,195,000 bbls., a daily average of 170,714 bbls. during the previous week and a daily average of 197,903 bbls. for the month of August. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	409,000
Boston	65,000
New York	969,000
Philadelphia	224,000
Others	100,000
Total	1,767,000
Daily average	252,429
At Gulf Coast ports—	
Tampa	58,000
Total	58,000
Daily average	8,285
At Atlantic and Gulf Coast ports—	
Total	1,825,000
Daily average	260,714
Daily average month of August	197,903
Daily average month of July	211,903

Distribution of total imports during the week ended September 5 was as follows:

Crude	918,000
Gasoline	304,000
Fuel oil	612,000

Gasoline imports during the week ended September 5, totaling 304,000 bbls.,

showed a substantial gain over the 233,000 bbls. imported during the previous week and fuel oil imports were sharply up at 611,000 bbls., against 356,000 bbls. in the preceding week, while crude oil imports were approximately 50 per cent higher at 910,000 bbls., against 606,000 bbls. These increases are believed to represent the receipt of larger shipments ordered from South America by the major companies at the outset of the shutdowns in Oklahoma and East Texas fields a few weeks ago.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended September 5 totaled 35,000 bbls., a daily average of 5,000 bbls., compared with 409,000 bbls., a daily average of 58,429 bbls. for the previous week and a daily average of 32,548 bbls. for the month of August. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	35,000
Total	35,000
Daily average	5,000
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	35,000
Daily average	5,000
Daily average month of August	32,548
Daily average month of July	54,903

All of the week's receipts from California were of gasoline.

Shipments of California refined products consigned to the East Coast during the week included the tanker Northern Sun (Sun Oil Co.), with 114,000 bbls. of gasoline for Philadelphia, and the tanker Christy Payne (Standard Oil Co. of New Jersey), with 88,000 bbls. of gasoline for Seawaren, N. J.

Recent reports of the placing of contracts for 1,500,000 bbls. of California gasoline for shipment eastward have thus far not been reflected by any appreciable movement of Pacific Coast motor fuel to the Atlantic Seaboard. On the contrary, California shipments eastward have been constantly declining during recent weeks. The reports of the booking of the California motor fuel by eastern marketers were confirmed, however, and it is now believed that the contracts call for shipment later on in the fall season, with eastern units preferring to draw further against their own storage holdings before taking in the Pacific Coast product for distribution in this territory.

An important factor in the decline in California gasoline shipments eastward recently has been the diversion of Richfield of New York's business to a southern unit of Cities Service.

Charter Market

There was little interest shown in the tanker charter market during the past week, and with the market still oversupplied with vessels charterers were disposed to continue to "shop" the market in an effort to locate tankers available at distressed rates.

With French refinery construction progressing rapidly, it is expected that there will be a heavier movement of American crude out of the Gulf for France, and this should be reflected by increased activity in the transatlantic trade.

Fixtures reported during the week were as follows:

Steamer Solsten (Norwegian), 3,196 net, 4,000 tons, part cargo, clean, Gulf to Antwerp and Hamburg, 11/6, September-October loading.

Motorship Moordrecht (Dutch), 9,000 tons unfinished benzine, Black Sea to the continent, 7/-, September loading.

Motorship Jenny (Norwegian), 2,682 net, fuel oil, Batoum to Ertvelde 8/-, October loading.

CHICAGO MARKET IS IN MUDDLED CONDITION

(Continued from Page 76)

are unsuited for use in this district. Some of the heavy fuel oils in this class have been offered below 15 cents, Group 3. Prices Monday were: On the 18-22 fuel oil, per barrel, 25 to 27½ cents; 22-26 fuel oil, per barrel, 27½ to 32½ cents, a 2½-cent decline; 28-30 fuel oil, per barrel, 42½ to 47½ cents, with little available. Eighth of a cent declines are seen in the gas oil markets. The 32-36 industrial gas oil has sagged to 1 and 1¼ cents; 32-36 zero gas oil is at 1¼ to 1⅜ cents, and the 38-40 straw distillate is offered at from 1⅜ to 1½ cents.

The industrial demand for fuel oil is still in the offing and domestic users are not expected to bring buying support to the distillate markets for nearly another month.

Bright stocks moved up again and this time there was an advance in the price of neutrals. The zero to 10 D color bright stock is now quoted at 18½ cents, an advance of 1½ cents, and the 200, 3 color, material moved up 1 cent to 10 cents.

KANSAS FIELDS

(Continued from Page 35)

a chat producer, was drilled to the Viola lime at 3,255-59 feet, where it flowed 800 bbls. of oil in 24 hours. The well is the east offset to the discovery Viola lime producer in the north end of the Eastborough Pool.

The Otis gas field in Rush County was extended during the week by the completion of Deep Rock Oil & Refining Co.'s No. 1 Korn, C NW Section 23-18-16w, which made 38,200,000 feet of gas a day from the pay sand at 3,491-3,516 feet. A showing of oil was found in the formation at 3,487-91 feet.

Butler County

Flint Hills Oil & Gas Co.'s No. 1 Martin, CWL NW NE, Section 27-28-4, has been completed for 100,000 feet of gas in sand 1,473-1,504 feet.

Cowley County

Shawver and others' No. 2 Vestal, SE cor. NW, Section 19-34-3, made 3,000,000 feet of gas in sand 1,474-77 feet. Dunlap and others' No. 2 Thompson, NE cor. NW NE, Section 5-33-5, has been completed for 150,000 feet of gas in sand 648-56 feet. No. 3 Thompson, SW cor. NW NE, Section 5-33-5, has been completed for 200,000 feet of gas in sand 650-61 feet.

Greenwood County

Wilson and others made location for No. 1 Alspaugh, C SW NW, Section 16-28-12. Taylor and others' No. 1 Bunyard, NE cor. SE, Section 29-28-12, is rigging up.

McPherson County

Darby Petroleum Corp. made location for No. 2 Kaegi "B," SW cor. NE, Section 20-19-1w. Rosenthal and others' No. 1 Knudson, SW cor. SE, Section 23-19-2w, has been deepened from 2,931 feet to 2,964 feet and is testing. Henderson Drilling Co. and others' No. 1 Peterson, C SW NE, Section 2-19-2w, is dry and abandoned at 3,452 feet. Derby Oil Co. and The Texas Company's No. 1 Unruh, SE cor., Section 26-19-2w, has been completed for a potential of 1,624 feet in the Viola lime at 3,386-96 feet.

Rice County

E. H. Langston & Dietrich's No. 1 Purcell, NW cor., Section 33-19-9w, is dry and abandoned at 3,375 feet.

Rush County

Deep Rock Oil Corp. and others' No. 1 Koril, C NW, Section 23-18-16w, has been completed for 35,200,000 feet of gas in sand 3,493-3,516 feet. Boyle, Grossman and others' No. 1 Greenwalt, C SW, Section 17-19-16w, has been completed for 400 bbls. in sand 3,825-40 feet.

Sedgwick County

Magnolia Petroleum Co.'s No. 1 Pendelum, NW cor., Section 31-28-1w, is dry and abandoned at 3,338 feet.

DR. HARRY P. DAVIS DEAD

Dr. Harry Phillips Davis, vice president and director of the Westinghouse Electric & Manufacturing Co., one of the country's foremost engineers and executives, died in his home in Pittsburgh, Pa., on September 10. For more than 21 of the 40 years during which he was connected with the Westinghouse company Doctor Davis was in charge of the engineering department and for 15 years directed its engineering and manufacturing operations.

CLASSIFIED WANTS

POSITIONS WANTED

MANAGER AND SUPERINTENDENT
Graduate engineer, 12 years oil field experience with major and independent companies, in geological, scouting, land and leasing, drilling and production departments. Thoroughly experienced oil field manager with exceptional references. Will accept position in any of above departments or in charge of operations or developments. Write Box E-522, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED by Paint and Varnish Efficiency Expert. As supervisor of trucks, service pumps, and station painting. Can reduce maintenance cost. Address Box E-562, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANTED DRILLER, W. B. Johnson (Bill Butler) address, or information, to settle estate. Mary A. Wolff, General Delivery, San Angelo, Tex.

WANT brokers and salesmen everywhere to sell my royalties. Write Box E-563, The Oil and Gas Journal, Tulsa, Okla.

GENERAL CREDIT MANAGER for large corporation doing wholesale and retail business; excellent opportunity for the man who can qualify. Write Box E-565, The Oil and Gas Journal, Tulsa, Okla.

HOUNDS

HUNDRED COONHOUNDS. Foxhounds. Rabbithounds. Blueticks. Redbones. Blacktans. Supply Catalog. Beckennels, A-47, Herrick, Illinois.

HOTELS

BEAUCLAIR HOTEL
Okmulgee, Okla.
"Oil Men's Headquarters"
All Rooms with Bath, $2, $2.50, $3.

NEW BRADY HOTEL, TULSA, OKLA.
Tom Wilson, Mgr.
Fireproof, remodeled, new management. Free parking. Prompt, courteous service. Rates $1.00 up. Private baths $1.50.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER, ALLWINE & ROMMEL
240 Ouray Bldg., Washington, D. C.

MONEY RAISING

Financial Assistance arranged for new and operating companies. Bond issues prepared, issued and handled. Write fully. Reuter Co., Box 35, Wilmette, Chicago, Ill.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 2443 N. W. 12th, Oklahoma City.

CORPORATE ORGANIZING AND FINANCING
BROOKWORTH,
110 East 42nd St., New York.

JAMES E. MILLER CO. will co-operate with responsible firms or parties seeking aid in financing projects of higher order. Suite 200, New Brady Hotel, Tulsa, Okla.

JOHN MORRIS, 3608 WARREN ST., PHILADELPHIA, PA., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

CAPITAL: An exp. dependable broker will aid in financing projects of merit. Amster Leonard, East Orange, N. J.

OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

DO ALL
YOUR SHOPPING
UNDER ONE ROOF

ON THESE PAGES
YOU CAN FIND

Qualified help, Engineers, Chemists, Salesmen, Accountants, Used Equipment, Royalties, Leases, Production, Business Opportunities, Financial Assistance, Hotels, Maps, Printing, Patent Attorneys, etc., all these are advertised regularly in the Classified Section of

The Oil and Gas Journal
PRODUCING REFINING PIPELINE ENGINEERING MARKETING
CLASSIFIED DEPARTMENT

TULSA OKLAHOMA

The Oil-can Bird has a long bill!

The "oil-can bird" thinks only in terms of squirting some kind of oil on each machine every now and then. But that is *not* lubrication.

Vacuum *Organized* Lubrication aids the efficient operation of the entire plant and keeps down costs. In modern plants, the engineers agree with the Vacuum Oil Company that lubrication is correct only when it aids in keeping at a minimum these four great costs—

1. Production
2. Power
3. Maintenance
4. Lubrication

Vacuum *Organized* Lubrication is daily making new records of low operating costs on machinery like yours.

The oil-can bird is not yet extinct. He still roosts in some industrial plants.

All machines look alike to the oil-can bird. He spits in the general direction of every oil hole he sees, whether it needs it or not. Of course he overlooks some bearings. When one of them starts screaming for oil, he comes a-running.

All oils look alike to the oil-can bird. As long as his regurgitating stomach is full of some kind of oil, he thinks all's swell.

The oil-can bird is a care-free fellow. He is always cheerful as long as there is more oil in the stockroom. He never worries about operating costs, wasted oil, or merchandise ruined by oil-drip.

Modern plants find that the oil-can bird has too long a bill. They introduce Vacuum *Organized* Lubrication—which clips the oil-can bird's bill so short that he soon starves to death.

GARGOYLE

Lubricants

Diesel Engine Lubrication, Air Compressor Lubrication, Bearings and Their Lubrication, Stationary Steam Engines, Gear Lubrication.

We will send to any executive or engineer, if requested on your company letterhead, one or all of these authoritative treatises on lubrication.

VACUUM OIL COMPANY, INC.

61 Broadway, New York City. Branches and warehouses throughout the world

REFINERIES INSTALL RECOVERY PLANTS

(Continued from Page 17)

case of the steel tank type plant, the water to be treated is received in an equalizing sump, flowing from this sump to a mixing basin equipped with mechanical agitators. Into this mixing basin are fed the treating chemicals and in as much as the concrete gravity plants are usually of relatively large capacities, the amount of chemicals fed is correspondingly large. Large amounts of chemicals can be most economically and conveniently fed in dry by means of dry chemical feeders as indicated.

The chemicals and water are thoroughly mixed in the mixing basins by the mechanical agitators and flow from the mixing basin to the settling basin. During this slow travel through the settling basin, the heavy precipitate formed as a result of the treatment settles out, the clarified water passing over a weir at the outlet end of the basin to the filters.

These filters are of the conventional gravity type consisting of one or more concrete basins equipped with suitable piping for control of the various filter operations and underdrain systems and wash troughs. The underdrain system consists of a header with laterals. The space between the laterals is occupied by especially designed concrete blocks which serve to uniformly distribute the wash water during the washing operation. They serve to create a uniform draft over the entire bed during the filtering operation.

Each filter is equipped with a rate of flow controller on the outlet. These rate controllers establish and maintain a uniform rate of flow throughout the filter run. In this way the load on the various filter units is equalized and the flow through the plant maintained at a constant rate.

In the Oklahoma installations the concrete basin is 48x48 feet. At one end is the 10x48-foot oil separator. The oil is skimmed from the surface water in the separator and returned to oil storage tanks. From the oil separator tank the water discharges into a mixing trough where the lime hydrated solution is mixed with the water to neutralize the acid. This is followed with a sodium aluminate solution which precipitates a heavy floc in the adjoining settling basin. This floc includes the emulsified oils. This settling basin is 6 feet deep. Every second day this floc is pumped to earthen storage about 10 minutes being required to remove the desired quantity from the basin.

From the settling basin the water goes to a 10x48-foot clear well. An electrically driven centrifugal pump with automatic control maintains a constant level in the clear well, the water being delivered back to the plant where it is used for cooling and treating.

While Diagrams 1 and 2 are typical of the two types of plant which have been discussed, the arrangements shown may be modified to meet local conditions and space available. In connection with the steel tank type of waste water recovery plant, it is frequently possible to use existing storage tanks by equipping them with the downtake and reaction chamber and sludge removal system. Plants constructed along the lines outlined above are practically automatic in their operations and require the minimum of attendance. The only labor involved is that required for charging the chemical feeding equipment with the required chemicals. With plants of this type indicated, not more than one laborer per shift is needed for their satisfactory operation and maintenance.

C. C. GAYLORD DIES

LOS ANGELES, Calif., Sept. 12.—Clifford C. Gaylord, assistant secretary and treasurer of the Rio Grande Oil Co., died unexpectedly last week. Mr. Gaylord, who was associated with the Rio Grande interests since 1920, was transferred to Los Angeles from El Paso, Tex., in 1925.

ROCKY MOUNTAIN AREA

(Continued from Page 75)

33-5w, which spudded to 30 feet and shut down.

Carbon County

The Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7s-22, Dry Creek, a mile to the east of the discovery well, is coring deeper at 4,765 feet in the second Frontier, and continues to show gas saturation. There was considerable gas in the first Frontier. It probably will be continued on down to the Dakota in which oil was found in the discovery well.

The Ohio Oil Co.'s No. 1 Chapman, C SW SW, Section 2-7s-21, is drilling at 4,287 feet, and its No. 2 Montana Industrial, C NW NE, Section 11-7-21, and No. 2 Souders, C NE SW, Section 2-7-21, have cellars completed. Location for the Ohio's No. 1 Kohal, SW cor. SE, Section 10-7s-21, has been abandoned.

Petroleum County

The Oretana Oil Co.'s No. 3, NW SE, Section 21-15-30, Cat Creek Field, is a location. The lease covers 320 acres upon which it is planned to drill two more wells after No. 3 is finished.

Teton County

The California Co.'s No. 1 Sullivan, NW NE NW, Section 34-27-7w, Bynum district, is bottomed at 1,924 feet and fishing for bit. The Trans-American Oil Co.'s No. 1 Lackey, SE NE NW, Section 28-24-8w, Teton district, is drilling in a wet hole at 825 feet. It started in the Ellis.

Toole County

In the Kevin-Sunburst Field, E. C. Moffitt's No. 1 Dunham, NE NW SW (cor.), Section 1-33-1w, was completed at 1,365 feet with a flow of 6,000,000 feet of gas per day from sand at 1,230-53 feet.

The Five Forty Oil Co.'s No. 2 Donovan, C NE NW, Section 34-33-2w, was completed at 1,545 feet for 2,500,000 feet of gas per day. The Sunburst sand was at 1,507-35 feet.

Two new operations are the Magic City Oil Co.'s No. 5 Burwash, CSL NE SE, Section 15-34-1w, rig up, and the Arrow Oil Co.'s No. 2 Ellington, CSL NW SW, Section 14-35-3w, rig up.

In the Barthelote district, the Liquid Gold Oil Co.'s No. 1 Roberts, C NW NE, Section 25-36-1e, landed the 5⅞-inch at 2,480 feet and is cleaning out before drilling into the Ellis-Madison contact. The Oregon Oil Syndicate's No. 1, SW NE SE, Section 20-36-2e, is spudding at 300 feet and will set surface pipe before going deeper.

Liberty County

In the Bear's Den district, the Liberty Gas Co.'s No. 1 McDowell, C SE SW, Section 13-36-5e, was abandoned at 2,429 feet. It had water in the Ellis at 2,388 feet and the Ellis-Madison contact at 2,420 feet was dry. The Liberty Gas Co.'s No. 1 Corwin Land, C SW SW, Section 12-36-5e, has rig up, and G. G. Howard's No. 2 Schoonover, C SE NE, Section 13-36-5e, is spudding at 150 feet.

In the Utopia district, the California Co.'s No. 1 Eleanor, SE SE, Section 11-33-6e, is shut down at 3,244 feet for cement to set. It had a good show of oil at 3,233 feet, but water broke in from behind the 6¼-inch.

In Liberty district, the Northland Oil & Gas Co.'s No. 1 Yurman, C SE SW, Section 32-33-5e, is drilling below 3,700 feet after cementing cave at that depth.

Carter County

The Minnesota Oil & Development Co.'s No. 1 Nuziman, SE cor. SW, Section 7-8s-58, is reported abandoned at 1,080 feet. The Ross Petroleum Co.'s No. 1, NW SE NE, Section 7-87-57, is reported abandoned at 2,505 feet.

Yellowstone County

George Rayburn and others' No. 1, NW cor. SE, Section 23-2s-24, Laurel district, has rig up.

Rosebud County

The Prairie Oil & Gas Co.'s No. 1-XX, Contr. 3, NE SW NW, Section 26-10n-39, Porcupine Dome, is drilling at 2,385 feet in broken sand. A rotary is used in this operation in an effort to get through this water sand and test lower horizons.

UTAH

The Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21, Salt Valley, in Grand County, is bottomed at 3,500 feet and cleaning out to run the 8¼-inch and drill deeper. At 3,380-97 feet the well showed for a settled production of 15 bbls. per day in conglomerate shale in the Pennsylvanian formation.

The Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Utah County, is drilling at 3,350 feet in hard lime.

IDAHO

An Associated Press report from Boise says that the Ohio Oil Co. has announced that it has acquired the Weiser-Payette holdings of the Mountain States Oil & Gas Co., comprising 7,200 acres, and will being development at once under a 60-40 agreement. Several test wells will be drilled. The field is north of Payette, in the county of that name. Details of the deal have not been received.

Several months ago the Mountain States' No. 2 Daniels, SW SW, Section 32-10n-4w, was reported to have encountered gas at 1,995 feet and to have thrown gas and sand with mud and water into the air for several hours. While some work was done on the wells afterwards, it is understood that on account of the sand choking up the hole, it was not completed. In 1930, the Idaho-Oregon Petroleum Corp.'s No. 2, NW SE, Section 33-9n-5w, was reported to have had a blowout at 1,270 feet and to have made better than 25,000,000 feet a day before it sanded up. These wells are supposed to have found the gas in the Tertiary formation. They attracted considerable attention on account of the high banks of sand thrown out and around the wells.

It is not unlikely that if the field comes up to expectations the Ohio company will make it part, at least, of the source of supply for a gas system which may be extended to the Pacific Coast. The company has had plans for some time for extending its Utah line (Western Public Service Co.) into southern Idaho, using gas from the Hiawatha Dome in Wyoming and Colorado.

Pipe Line Runs

Average daily pipe line runs in week ending September 12:

WYOMING

	Bbls.
Salt Creek	22,530
Big Muddy	1,760
Byron	5
Dallas-Derby	310
Dutton Creek	....
Elk Basin	690
Ferris	....
Frannie	260
Grass Creek	2,140
Greybull	10
Hamilton Dome	90
Hudson	360
LaBarge	1,030
Lance Creek	360
Lost Soldier	2,870
Lovell	....
Oregon Basin	1,230
Osage	1,180
Pilot Butte	40
Rock River	1,770
Poison Spider	220
Simpson Ridge	50
South Casper	....
Teapot	10
Warm Springs	90
Total Wyoming	37,005

MONTANA

Buckley-Border	600
Cat Creek	940
Dry Creek	310
Kevin-Sunburst	4,420
Lake Basin	70
Pondera	1,410
Total Montana	7,750

COLORADO

Florence	420
Fort Collins	890
Iles	980
Moffat	650
Orchard	450
Rangely	20
Tow Creek	330
Walden	40
Total Colorado	3,780

NEW MEXICO

Rattlesnake	820
Hogback	520
Table Mesa	71
Artesia	195
Cap Rock	200
Getty	....
Hobbs	37,110
Jal	1,111
Lea City	2,108
Eunice	480
Total New Mexico	42,615
Total Rocky Mountain area	91,150
Total previous week	93,891
Difference	2,741

Concrete basin for mixing and settling in waste water recovery installation at an Oklahoma refinery.

OIL FIRE PROTECTION COMMITTEES ORGANIZED

J. A. Fletcher, of the Barnsdall Oil Co., Longview, Tex., has been elected chairman of the Lathrop district committee, a unit of the East Texas fire protection committee recently organized by the American Petroleum Institute's division of production in the new East Texas oil field area. C. H. Stout, Arkansas Fuel Oil Co., Longview, is secretary of the district committee.

E. L. Davenport, Shell Petroleum Corp., Kilgore, Tex., was elected chairman of the Kilgore district committee, and J. B. Wells, Magnolia Petroleum Co., Kilgore, was elected secretary.

W. H. Blythe, Arkansas Fuel Oil Co., Henderson, Tex., was elected chairman of the Henderson district committee, with B. M. Givens, Sun Oil Co., Arp., Tex., as secretary.

EAST CENTRAL TEXAS

(Continued from Page 25)

price bolstered up to the present 68-cent posting.

Sales Agency May Help

The organization of an oil sales agency in the district for the purpose of marketing independent producers' and smaller companies' oil is also expected to help buoy the price of the oil in the district, as 50,000 bbls. of oil per day are reported already pledged to the agency when and if it is definitely put into operation. J. R. Pearson of Tyler is chairman of the executive committee. Headquarters will probably be at Dallas or Tyler. The agency is patterned after the California Agency, which markets around 150,000 bbls. per day for independents and smaller companies in that State. It will not lay pipe lines nor build any loading racks, the purchasing companies laying lines and making connections to the leases served through the agency.

Gladewater Completion

The Texas Company's No. 1 Walker in the Davis Survey, south of Gladewater, on the western edge of the Gregg County producing area, is flowing at the rate of 40 bbls. fluid per hour through one-half-inch choke on tubing, making 30 per cent salt water. Total depth is 3,598 feet and sand was topped at 3,595 feet. It was completed two weeks ago for an initial of 135 bbls. per hour through three-fourths-inch choke.

New Order Expected

C. V. Terrell, chairman of the Railroad Commission, has been in East Texas this week conferring with General Wolters at Kilgore. It is believed a new order will soon be issued reducing the allowable per well to around 200 bbls., thereby cutting daily production back to the 400,000-bbl. mark.

There is no word as to when the remaining 120 troops will be recalled from the district, and there is still a chance of another complete shutdown taking place in the field as Governor Sterling has not seemed in favor of the curtailment orders or the manner in which drilling has continued at a rapid rate, with the potential increasing to a great extent each week.

The Petroleum Marketing Co. is building one 55,000-bbl. steel storage tank in the Gladewater area, western Gregg County.

COMPLETIONS IN EAST CENTRAL TEXAS

Gregg County

Angle and Bytex' No. 1 Parker, derrick abandoned. P. P. Ash and others' No. 2 Tubbs, derrick abandoned. Barnsdall Oil Co.'s No. 1, oil sand 3,613-36 feet, initial production 116 bbls. per hour on 1-inch choke, total depth 3,637 feet. Oscar Breeding and others' No. 1 Adams, oil sand 3,597-3,660 feet, initial production 11 bbls. per hour on four-sixty-fourths-inch choke, total depth 3,661 feet. Byrd-Frost, Inc.'s No. 1 Rysond, oil sand 3,711-16 feet, initial production 25 bbls. per hour on four-sixty-fourths-inch choke, total depth 3,716 feet.

Gulf Production Co.'s No. 1 Anderson, oil sand 3,469-95 feet, initial production 186 bbls. per hour on three-quarters-inch tubing choke, total depth 3,494 feet. Lynch and others' No. 1 Cloud, derrick abandoned. Magnolia Petroleum Co.'s No. 1 Fonville, oil sand 3,534-40 feet, initial production 126 bbls. per hour on 4-inch line, total depth 3,541 feet.

Shasta Oil Co.'s No. 1 Rickey, oil sand 3,542-77 feet, initial production 72 bbls. per hour through three-quarters-inch tubing choke, total depth 3,576 feet. Shell Petroleum Corp.'s No. 2 Jones, oil sand 3,523-75 feet, initial production 220 bbls. per hour on 2½-inch tubing open, total depth 3,576 feet. Same corporation's No. 1 Moore, oil sand 3,571-77 feet, initial production 196 bbls. per hour on 2½-inch tubing open, total depth 3,566 feet. Stanolind Oil & Gas Co.'s No. 3 Wilhite, oil sand 3,626-86 feet, initial production 200 bbls. per hour on 2½-inch tubing choke, total depth 3,689 feet.

Vacuum Oil Co.'s No. 2 Zigler, oil sand 3,467-3,502 feet, initial production 114 bbls. per hour on eleven-sixteenths-inch tubing choke, total depth 3,516 feet. Atlantic Production Co.'s No. 1 H. M. Myers, top sand 3,546 feet, no gauge, total depth 3,493 feet. Delaney and Stoddard's No. 1 McKinley, top sand 3,628 feet, no gauge, total depth 3,659 feet. East Texas Refining Co.'s No. 2 Hindman, top sand 3,619 feet, no gauge, total depth 3,641 feet.

Empire Gas & Fuel Oil Co.'s No. 1 Joe Bender, top sand 3,554 feet, no gauge, total depth 3,560 feet. Same company's No. 2 Rogers, top sand 3,594 feet, no gauge, total depth 3,654 feet. Fain and McGaha's No. 1 Rosa Corbin, top sand 3,533 feet, no gauge, total depth 3,572 feet. F. H. E. Oil Co.'s No. 2 J. Flemister, top sand 3,612 feet, no gauge, total depth 3,643 feet. F. H. E. Oil Co.'s No. 1 Jones, top sand 3,651 feet, no gauge, total depth 3,679 feet.

Shell Petroleum Corp.'s No. 1 Jones, top sand 3,490 feet, no gauge, total depth 3,547 feet. Same corporation's No. 2 Ritchey, top sand 3,595 feet, no gauge, total depth 3,624 feet. Louis Sikes and others' No. 1 L. A. Rodden, top sand 3,566 feet, no gauge, total depth 3,604 feet. J. E. Stock and others' No. 1 Doby, top sand 3,475 feet, no gauge, total depth 3,514 feet.

Gulf Production Co.'s No. 4 Tom Clemen, top sand 3,616 feet, initial production 178 bbls. per hour through three-fourths-inch tubing choke, total depth 3,626 feet. Magnolia Petroleum Co.'s No. 1 A. J. Green, top sand 3,596 feet, no gauge, total depth 3,611 feet. Margay Oil Co.'s No. 2 Rosa Corbin, top sand 3,547 feet, no gauge, total depth 3,567 feet. Premier Oil Co.'s No. 1 Matthews, top sand 3,578 feet, no gauge, total depth 3,608 feet.

Texota Corp.'s No. 1 Molle Fenn, top sand 3,612 feet, no gauge, total depth 3,630 feet. The Texas Company's No. 2 G. W. Clark, top sand 3,570 feet, no gauge, total depth 3,629 feet. Tidal Oil Co.'s No. 4 Nettleton, top sand 3,492 feet, no gauge, total depth 3,512 feet.

Rusk County

British American Oil Co.'s No. 1 Stone, top sand 3,619 feet, initial production 150 bbls. per hour through open tubing, total depth 3,627 feet. Gulf Production Co.'s No. 1 Shaw, top sand 3,706 feet, initial production 155 bbls. per hour through open tubing, total depth 3,715 feet. Same company's No. 1 Stone, top sand 3,633 feet, initial production 150 bbls. per hour through open tubing, total depth 3,645 feet. Same company's No. 2 Wiley, top sand 3,700 feet, initial production 170 bbls. per hour, total depth 3,710 feet.

Humble Oil & Refining Co.'s No. 1 Arnold, top sand 3,775 feet, initial production 72 bbls. per hour through three-fourths-inch tubing choke, total depth 3,800 feet. Same company's No. 1 Lula Barton, top sand 3,682 feet, initial production 112 bbls. per hour through three-fourths-inch tubing choke, total depth 3,714 feet. Same company's No. 3 First State Bank, top sand 3,716 feet, initial production 94 bbls. per hour, total depth 3,721 feet. Same company's No. 3 J. E. Glover, top sand 3,703 feet, initial production 114 bbls. per hour through three-fourths-inch tubing choke, total depth 3,732 feet. Same company's No. 3 W. B. Key, top sand 3,714 feet, initial production 105 bbls. per hour through three-fourths-inch tubing choke, total depth 3,720 feet. Same company's No. 2 J. W. Turner, top sand 3,667 feet, initial production 66 bbls. per hour, total depth 3,782 feet.

W. B. Hamilton's No. 1 Thompson, temporarily abandoned, total depth 3,692 feet. H. L. Hunt's No. 3 Plowman, top sand 3,680 feet, no gauge, total depth 3,743 feet. Kirby Petroleum Co.'s No. 1 Gramaling, top sand 3,650 feet, initial production 190 bbls. per hour through open tubing, total depth 3,759 feet. Magnolia Petroleum Co.'s No. 4 Eaton, top sand 3,731 feet, initial production 110 bbls. in 15 minutes through open tubing and casing, total depth 3,736 feet. J. J. O'Hearn's No. 3 McMillan, top sand 3,673 feet, initial production 94 bbls. per hour through three-fourths-inch tubing choke, total depth 3,699 feet. Petroleum Marketing Co.'s No. 1 M. M. Barksdale, top sand 3,686 feet, initial production 420 bbls. per hour, through open casing and tubing, total depth 3,741 feet.

R. M. V. Oil Co.'s No. 2 Bridwell, top sand 3,594 feet, initial production 225 bbls. per hour through pinched tubing, total depth 3,624 feet. Stanolind Oil & Gas Co.'s No. 6 O'Quinn, top sand 3,786 feet, initial production 146 bbls. per hour through 1¼-inch tubing choke, total depth 3,790 feet. Tidal Oil Co.'s No. 4 Pinkston, top sand 3,767 feet, initial production 225 bbls. in 1½ hours through open tubing, total depth 3,801 feet. Wade Reynolds' No. 1 Brett, top sand 3,690 feet, initial production 170 bbls. per hour through open tubing, total depth 3,703 feet.

Gulf Production Co.'s No. 6 Birdsong, top sand 3,752 feet, initial production 125 bbls. per hour, through three-fourths-inch tubing choke, total depth 3,586 feet. Same company's No. 4 Brightwell, top sand 3,577 feet, initial production 119 bbls. per hour through three-fourths-inch tubing choke, total depth 3,611 feet. Houston Oil Co.'s No. 3 Thompson, top sand 3,657 feet, initial production 94 bbls. per hour through 1-inch tubing choke, total depth 3,702 feet.

Humble Oil & Refining Co.'s No. 29 Crim, top sand 3,633 feet, initial production 100 bbls. first hour through three-fourths-inch tubing choke, total depth 3,647 feet. Same company's No. 44 Crim, top sand 3,572 feet, initial production 127 bbls. first hour through three-fourths-inch tubing choke, total depth 3,586 feet. Killum and Phillips' No. 2 Brock heirs, top sand 3,638 feet, initial production 600 bbls. per hour through open casing, total depth 3,644 feet.

Smith County

Roy I. Carter's No. 1-B Wright, top sand 3,686 feet, no gauge, total depth 3,715 feet. H. L. Hunt's No. 6-A Fair, top sand 3,635 feet, initial production 300 bbls. per hour through open tubing, total depth 3,662 feet. Nash and Strickland's No. 1 Wright, top sand 3,698 feet, initial production 31 bbls. per hour through twenty-six-sixty-fourths-inch tubing choke, total depth 3,708 feet. Sun Oil Co.'s No. 1 T. O. Wright, top sand 3,672 feet, initial production 225 bbls. per hour through pinched tubing, total depth 3,715 feet.

Upshur County

B. L. Brookins' No. 1 Bland, top sand 3,702 feet, no gauge, total depth 3,737 feet. Humble Oil & Refining Co.'s No. 1 O'Byrn, top sand 3,664 feet, initial production 35 bbls. per hour through three-fourths-inch tubing choke, total depth 3,669 feet. Same company's No. 1 Smith, top sand 3,630 feet, initial production 67 bbls. per hour through three-fourths-inch tubing choke, total depth 3,646 feet. Same company's No. 6 Edwards, oil sand 3,636-70 feet, initial production 80 bbls. per hour through three-fourths-inch tubing choke, total depth 3,672 feet. Same company's No. 1 Smith, oil sand 3,633-62 feet, initial production 283 bbls. first three hours on three-fourths-inch tubing choke, total depth 3,660 feet.

Murphy and others' No. 1 Miller, oil sand 3,724 feet, initial production 150 bbls. per hour through 2½-inch open tubing, total depth 3,732 feet. Murphy and others' No. 1 Watkins, oil sand 3,703-19 feet, initial production 60 bbls. per hour on 2½-inch tubing choke, total depth 3,718 feet. Stanolind Oil & Gas Co.'s No. 1 Adkins, top sand 3,672-76 feet, initial production 101 bbls. per hour in one hour on 2½-inch open tubing, total depth 3,675 feet. Magnolia Petroleum Co.'s No. 6 Free, top sand 3,628 feet, no gauge, total depth 3,640 feet.

NORTH AND WEST TEXAS

(Continued from Page 26)

Vernon, oil sand 2,985-95 feet, initial production 14,000,000 feet of gas, total depth 3,015 feet. Hoffman and Page's No. 1 Hotch, top pay 3,005 feet, initial production 1,750,000 feet of gas, total depth 3,005 feet. Ward and others' No. 1 Jackson, gas sand 3,007-19 feet, initial production 6,650,000 feet of gas and spraying 10 bbls. of oil, total depth 3,043 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Gray County

Magnolia Petroleum Co.'s No. 1 Heaston, temporarily abandoned. Pulse and others' No. 1 Simpson, shot 140 quarts 3,221-51 feet, initial production 150 bbls., total depth 3,255 feet.

Moore County

Sunray Oil Co.'s No. 1 Jones, total depth 3,380 feet, drilled deeper from 3,376 feet, top pay 3,359-80 feet, initial production 700 bbls. oil and 800 bbls. of water.

SHIPMENTS THROUGH TRUNK LINES

Company, size and location—	Bbls.
Atlantic, 16-inch, Houston	20,760
Gulf, 10-inch, Ranger	10,272
Humble, 2 and 8-inch, San Angelo	26,120
Humble, 10 and 12-inch, Comyn	33,756
Illinois, 2 and 8-inch, Del Rio	26,750
Magnolia, 8-inch, De Leon	10,743
Pasotex, 8-inch, El Paso	10,605
Shell, 10-inch, Cushing, Okla.	40,822
Shell, 10-inch, Houston	25,865
Texas, 12-inch, Houston	24,763
Total	230,456

SHIPMENTS TO REFINERIES

Burford Ref. Co., Pecos	5,000
Cosden Ref. Co., Big Spring	6,995
Coltex Ref. Co., Colorado	8,310
Greatwestern Ref. Co., Big Spring	2,162
Wickett Ref. Co., Wickett	500
Continental Ref. Co., Pyote	691
Total	23,658

SHIPMENTS BY TANK CAR

Shell Pet. Corp., from McCamey	400
Big Lake Oil Co., from Texon	800
Total	1,200
Total daily average production	208,421
Total daily average distribution	255,314
Daily average from storage	46,893

OIL MAN'S CALENDAR

SEPTEMBER

16-18—Atlantic City, N. J., annual meeting, National Petroleum Association, Hotel Traymore.

17-18—Detroit, Mich., Manufacturers Section, A.G.A., Book-Cadillac Hotel.

21-25—Boston, Mass., Exposition, American Society for Steel Treating.

23-26—Asheville, N. C., American Trade Association Executives.

24-25—Lufkin, Tex., Southwestern District, A.P.I. Division of Production, Angelina Hotel.

28-29—Atlantic City, N. J., National Association of Motor Bus Operators, Hotel Ambassador.

OCTOBER

2-3—Houston, Tex., Petroleum Division, American Institute of Mining and Metallurgical Engineers.

12-15—Birmingham, Ala., U. S. Good Roads Association Convention, Tutwiler Hotel.

12-16—Chicago, National Safety Council.

12-16—Atlantic City, N. J., American Gas Association.

14-16—Pittsburgh, Pa., Society of Industrial Engineers.

27-29—Washington, D. C., S.A.E. National Transportation and Maintenance Committee, Shoreham Hotel.

NOVEMBER

10-12—Chicago, twelfth annual meeting, American Petroleum Institute, Stevens Hotel.

16-21—Pittsburgh, Pa., third International Conference on Bituminous Coal, Carnegie Institute.

30-Dec. 4—New York, N. Y., Annual Meeting, American Society of Mechanical Engineers.

DECEMBER

7-12—Atlantic City, N. J., Trade Show, Motor and Equipment—National Standard Parts Association.

9-11—Atlantic City, N. J., American Institute of Chemical Engineers.

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

1932

JANUARY

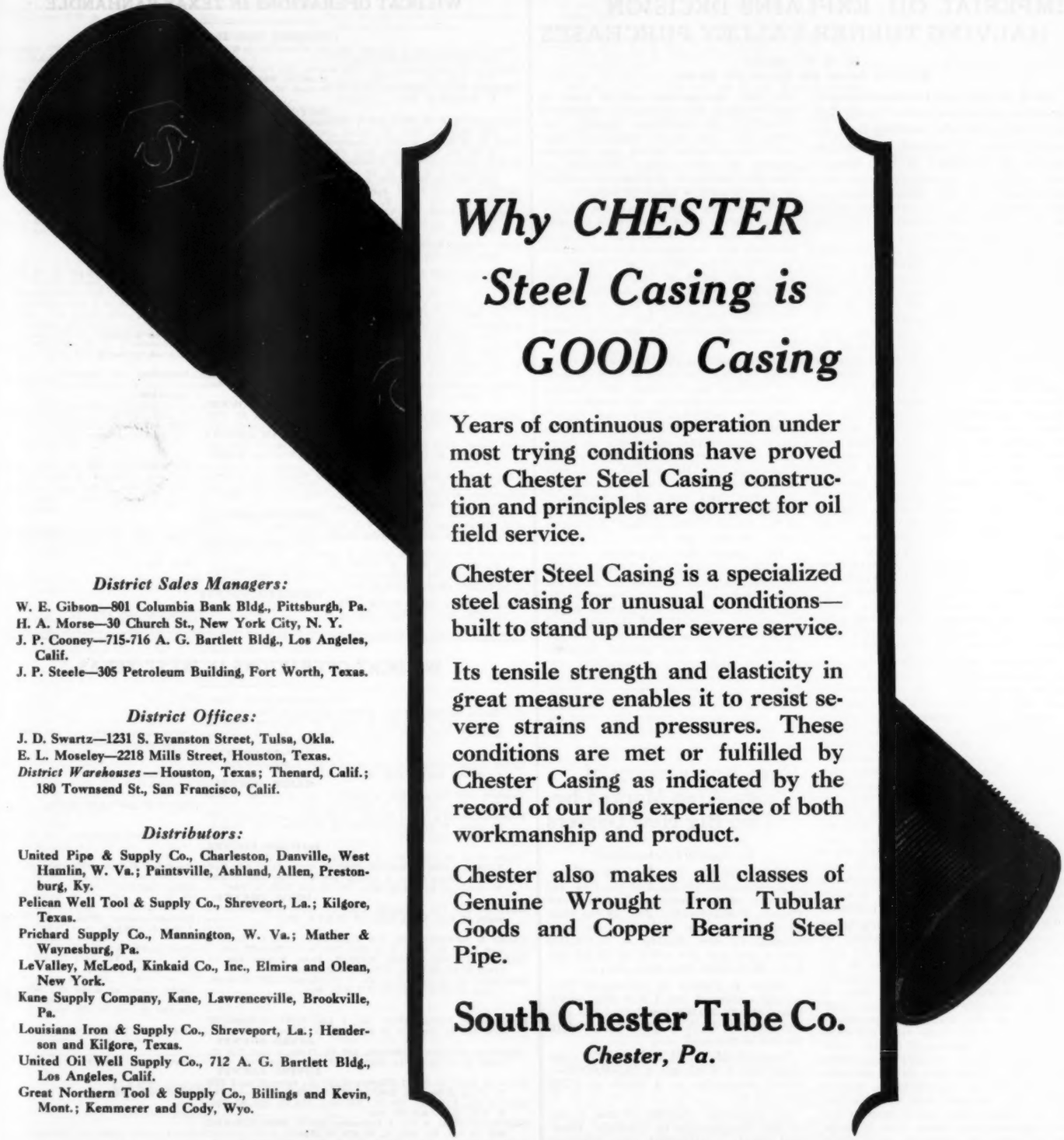
9-15—Detroit, Mich., Convention and Road Show, American Road Builders Association, Airport Building.

9-16—New York, National Automobile Show.

30-Feb. 6—Chicago, Ill., National Automobile Show.

MARCH

17-19—Oklahoma City, Okla., American Association of Petroleum Geologists.



Why CHESTER Steel Casing is GOOD Casing

Years of continuous operation under most trying conditions have proved that Chester Steel Casing construction and principles are correct for oil field service.

Chester Steel Casing is a specialized steel casing for unusual conditions—built to stand up under severe service.

Its tensile strength and elasticity in great measure enables it to resist severe strains and pressures. These conditions are met or fulfilled by Chester Casing as indicated by the record of our long experience of both workmanship and product.

Chester also makes all classes of Genuine Wrought Iron Tubular Goods and Copper Bearing Steel Pipe.

South Chester Tube Co.
Chester, Pa.

District Sales Managers:

W. E. Gibson—801 Columbia Bank Bldg., Pittsburgh, Pa.
H. A. Morse—30 Church St., New York City, N. Y.
J. P. Cooney—715-716 A. G. Bartlett Bldg., Los Angeles, Calif.
J. P. Steele—305 Petroleum Building, Fort Worth, Texas.

District Offices:

J. D. Swartz—1231 S. Evanston Street, Tulsa, Okla.
E. L. Moseley—2218 Mills Street, Houston, Texas.
District Warehouses—Houston, Texas; Thenard, Calif.; 180 Townsend St., San Francisco, Calif.

Distributors:

United Pipe & Supply Co., Charleston, Danville, West Hamlin, W. Va.; Paintsville, Ashland, Allen, Prestonburg, Ky.
Pelican Well Tool & Supply Co., Shreveort, La.; Kilgore, Texas.
Prichard Supply Co., Mannington, W. Va.; Mather & Waynesburg, Pa.
LeValley, McLeod, Kinkaid Co., Inc., Elmira and Olean, New York.
Kane Supply Company, Kane, Lawrenceville, Brookville, Pa.
Louisiana Iron & Supply Co., Shreveport, La.; Henderson and Kilgore, Texas.
United Oil Well Supply Co., 712 A. G. Bartlett Bldg., Los Angeles, Calif.
Great Northern Tool & Supply Co., Billings and Kevin, Mont.; Kemmerer and Cody, Wyo.

CHESTER
STEEL CASING
SPECIALISTS IN CASING FOR DEEP WELL DRILLING
LINE PIPE

IMPERIAL OIL EXPLAINS DECISION HALVING TURNER VALLEY PURCHASES

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Sept. 14.—Curtailment of producing operations in the Turner Valley Field in Canada, resulting from the recent action of Imperial Oil, Ltd., in halving its purchases in that field, is due entirely to decreasing motor fuel consumption in the prairie provinces, says Imperial Oil in a statement outlining its position with respect to Canadian production and imports.

"Climaxing many years of disappointing effort to establish Canadian sources of crude oil supply came the decision recently announced by Imperial Oil, Ltd., to restrict purchases of crude in the Turner Valley Field to 50 per cent of the field's production," says the company. "This decision was enforced by greatly curtailed consumption of gasoline in the prairie provinces due to existing conditions and to large sales of naphtha direct to farmers by some of the independent operators in the valley. The decision was reached reluctantly because for nearly 20 years the company has been aggressively seeking for suitable crude supplies in Canada and during that time its quest, which has involved expenditures of many millions of dollars, has embraced territory from the Atlantic to the Pacific, and almost to the rim of the Arctic. Nowhere did this work seem more promising of results than in the Turner Valley where the company's investments have approximately equaled if not exceeded the aggregate of money invested by all others and where, consequently, the company suffers most from the enforced decision to restrict purchases to 50 per cent of production.

"Comments made recently in the press and elsewhere indicate a misunderstanding of certain basic considerations that enter into the company's operations as a refiner and distributor of petroleum products. The principal business of Imperial Oil, Ltd., is to supply a great variety of oil products, including gasoline, lubricants, kerosene, fuel oils, road oils, asphalt, etc., to the Canadian consumer. To do this, it needs suitable raw materials in the form of crude oil as distinct from crude naphtha. The crude oil available from Turner Valley and from Red Coulee, the only two important sources in Canada, is sufficient to supply less than one-third of the company's requirements for its Calgary refinery alone. The remainder must be imported.

"When conditions enforced curtailment of purchases in the Turner Valley, the company first of all restricted the production of its own subsidiaries by 50 per cent. Not until then did the company advise independent producers that it would be necessary to make an equivalent reduction in the volume of purchases from them. At the same time the company reduced its imports of foreign crude oil to the Calgary refinery from 3,000 bbls. daily to 1,500 bbls. daily, precisely the same ratio as applied in the Turner Valley. The company does not now import to Calgary, nor has it ever in the past imported more crude than is necessary to meet the demands encountered by the Calgary refinery for products, such as kerosene, fuel oils, road oils, asphalt, etc., that cannot be processed from Turner Valley production. Turner Valley naphtha, which comprises 95 per cent of that field's production, can be used only to blend with heavier naphtha to make but one product, gasoline. It is obvious that for the present other fields must be depended upon to meet the deficiency in the Calgary refinery's requirements.

"Since the company restricted its Turner Valley purchases some references have been made to the quantity of crude imported into Canada from the United States and from South America and it has even been suggested that a tariff should be imposed upon crude so as to divert production to the Turner Valley Field. It has been the aim of Imperial Oil, Ltd., during the past 50 years to make Canada self-sufficient in respect to petroleum and petroleum products. Imperial Oil, Ltd., is as anxious as anyone else—or more so—to see adequate sources of crude supply developed in Canada; but years of effort have failed to provide such a domestic supply.

"Those who believe that the Turner Valley should loom larger as a supplier of raw materials to Canadian refineries overlook two insurmountable difficulties. The first is the location of the field, remote from areas of heaviest consumption. The second is the nature of the product from the field. It is a wet gas field. This conclusion has been enforced by years of drilling in search of heavy crude.

"It is true that the light naphtha produced in the valley could be used throughout Canada for blending with heavier crude to make gasoline, but freight rates make its cost prohibitive at eastern points. Long since Imperial Oil, Ltd., made experimental shipments to determine just what could be done in this connection but the results were even more disappointing than was feared. Not only were there losses by evaporation—as was inevitable because of the nature of the Turner Valley product—but transport costs were too great.

"No matter how oppressive present conditions in the Turner Valley may be for the independent producer, they are very much more so for Imperial Oil, Ltd. These conditions are inherent in the location of the field and the nature of 95 per cent of the field's output—crude naphtha of very high gravity. Imperial Oil, Ltd., can accept responsibility for neither of these and its investment in the field is such that if a way out of the difficulty can be found, the company will gladly proceed along that way for the benefit of its shareholders."

First Anniversary of Tioga Area Marked by Two Big New Gassers

By Special Correspondent

WELLSBORO, Pa., Sept. 12.—Thursday, September 10, marked the first anniversary of the Tioga gas field in Tioga County, Pennsylvania. Just at the close of the first year two big wells were brought in, one starting at 33,000,000 feet a day and the other at 13,500,000 feet. Both wells have been shut in.

Mellon & Pollock of Pittsburgh, Pa., are the owners of No. 1 Van Zile, which found the 33,000,000-foot initial gas production at a depth of 4,000 feet, and in the top of the sand.

Pennsylvania Light & Power Co. completed No. 1 Kuhl, got a 13,500,000-foot initial production at a depth of 3,760 feet.

An important showing of gas, a test on the fair grounds in Towanda, Bradford County, is attracting great attention as the drilling proceeds. The Penn United Gas Co. is drilling this wildcat. At a depth of 4,890 feet the gas was uncovered and flowed with sufficient volume and pressure to lift the tools high in the hole.

It is thought the gas showing was in a black shale about 200 feet above the Oriskany sand. The showing was exhausted after an estimated 1,000,000 feet of gas was blown into the air.

Towanda is about 60 miles east of the gas development in Tioga County and if this well proves a commercial producer it will be the most easterly gas well in the United States, but not in North America, as there has long been a gas field in the Moncton district in New Brunswick and gas has been found in the Gaspe Bay district in Quebec and in other far eastern portions of Canada.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 26)

Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... S.D. 2,619 ft.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig; elevation 2,686 ft.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 2, Blk. 1, B.B.&S.F. Sur. ..... Location.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 30 ac., S 160 ac., Sec. 31, Blk. 46, H.&T.C. Sur. .. S.D. 450 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 2, Blk. Y, A.&B. Sur. ..... S.D. 3,016 ft.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.D. 3,115 ft.
Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, L.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

LUBBOCK COUNTY

Center. Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; S.D. .. 167 ft.

MOORE COUNTY

Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Location.
Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.
Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Gulf Prod. Co.'s No. 1 Burnett, 330 ft. from N line, 330 ft. from W line of NW, Sec. 356, Blk. 44, H.&T.C. Sur. ..... Location.
Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.
Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. ..... Drlg. 1,270 ft.

POTTER COUNTY

Red River Gas Co.'s No. 6-A Bivins, 1,344 ft. S, 1,089 ft. W, SE, Sec. 37, Blk. M-20, G.&M. Sur. ..... Drlg. 2,380 ft.; gas show 2,255 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... S.D. 900 ft.
Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... S.D. 2,690 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. ..... Cleaning out 2,005 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 26)

The Texas Company's No. 1 B. H. Barnham, 357 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur. ..... Total depth 2,222 ft.; straightening crooked hole.

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-8, P.S.L. Sur. ..... Total depth 4,680 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.
Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Total depth 3,202 ft.

HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 29, Twp. 1s, T.&P. Sur... Spudded and shut down.
Merrick & Lamb's No. 2 Chalk, 990 ft. from the N and W lines of Sec. 125, Blk. 29, W.&M.W.R.R. Sur. .... Drlg. 240 ft.

IRION COUNTY

Davis et al's No. 1 Sugga, 1,560 ft. from S and 925 ft. from W Sec. 3,051, Blk. 28, H.&T.C. Sur. ..... Underreaming 10-in. csg.; total depth 2,561 ft.
Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 709, J. P. Imhoff Sur. ... Shut down 463 ft.
Ellis et al's No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur. ..... Shut down 1,500 ft.
Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Cmtd. cave at 6,105 ft.; waiting on cement to set; total depth 6,160 ft.
Straughn & Adkins Bros.' No. 1 Lee, 1,080 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... Shut down 725 ft.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... Shut down 1,005 ft.

LOVING COUNTY

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 55, T.&P. Sur. ..... Shut down 810 ft.
Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Drlg. 910 ft.
Eppenauer et al.'s No. 1 Johnson, 330 ft. from NW and SW of Sec. 86, Blk. 1, W.&N.W. Sur. ..... Total depth 4,216 ft.; bailing hole.
Faibe & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... Shut down 2,500 ft.
Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur... Spudded and shut down.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,385 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Shut down 1,400 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 300 ft. from S cor. Sec. 132, E.L.R.R. Sur. ..... Shut down 2,860 ft.

PECOS COUNTY

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... Running 6-in. casing; total depth 1,300 ft.
Slaughter et al's No. 1 Sun Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, I.&G.N. Sur. ..... Location.

REAGAN COUNTY

Carl Cromwell et al's No. 1 University, 1,320 ft. from S line and 1,320 ft. from E line of Sec. 4, University Blk. 7 ..... Spudded 55 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 53, Cassel's Sur. ..... Spudded and shut down.
James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 75 ..... Shut down 2,400 ft.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Shut down 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... Total depth 2,510 ft.; underreaming 5 3/16-in. casing.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Shut down 4,500 ft., contract depth.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Total depth 4,080 ft.; drilling out cement.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 5,041 ft.

Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and shut down.

Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... Shut down 3,500 ft.

Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur. ..... Show oil 1,798, 1,820, 1,850 ft.; shut down 2,500 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur. .. Shut down 6,120 ft.

Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 2,545 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.

Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 130, Dist. No. 11, S.P. Sur. ... Shut down 1,994 ft.

Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Cosby Prod. & Roy. Co.'s No. 1 Lane, 2,310 ft. from S and 1,650 ft. from W, Sec. 36, Blk. 1, M.-K.-T. Sur. .. Shut down 1,515 ft.

Rankin et al's No. 1 Cordova Union Land, 660 ft. from N and E Sec. 6, G.C.&S.F. Sur., 1¼ miles S of Rankin ..... Drlg. 3,015 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Shut down 6,780 ft.

WARD COUNTY

Bradford's No. 1 York, 330 ft. from NE and SE of Sec. 10, Blk. 34, H.&T.C. Sur. ..... T.D. 2,503 ft; made small flow into pit.

Boogher's No. 1 fee, 235 ft. from SE and 3,553 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 2,111 ft.

Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 32, H.&T.C. Sur... Drlg. 2,005 ft.

Central Oil & Gas Co.'s No. 1 Barrow, 330 ft. from NW and 1,263 ft. from SW Sec. 55, J. W. Jackson Sur. ..... Fishing 1,960 ft.

H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW Sec. 12, Blk. 5, H.&T.C. Sur. ..... Spudded and shut down.

Gulf Prod. Co.'s No. 8 O'Brien, 2,310 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur... Running 8¼-in. casing at 2,430 ft.

Hankinson et al's No. 1 Emery, 3,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur. ..... Shut down 2,238 ft.

Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 715 ft.

R. F. Owens' No. 1 Lee, 1,344 ft. from NW and 4,533 ft. from SW Sec. 1, J. Howe Sur. ..... Rigged up standard tools.

Peck & Fuglar's No. 1 Merritt, 3,063 ft. from NE and 1,698 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 1,800 ft.

Prairie Oil & Gas Co.'s No. 1 Edmonson, 330 ft. from NW and 2,310 ft. from SW of Sec. 23, Blk. 5, H.& T.C. Sur. ..... Location.

Prairie Oil & Gas Co.'s No. 2 Edmonson, 330 ft. from NW and SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Location.

Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ..... Shut down 3,602 ft.

Rexford et al's No. 2 Johnson, 2,300 ft. from SE and 4,450 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 1,316 ft.

Paul Ryan et al's No. 1 J. S. Reynolds, 4,110 ft. from NE line and 150 ft. from NW line, Sec. 12, Blk. 5, H.&T.C. Sur. ..... Drlg. 775 ft.

Stanolind Oil & Gas Co.'s No. 1 Brown, 330 ft. from NW and SW Sec. 26, Blk. B-29 ..... Location.

Shipley et al's No. 5 Hayzlett, 2,490 ft. from SE and 1,980 ft. from SW Sec. 17, Blk. 5, H.&T.C. Sur. ..... Top pay 2,465 ft.; total depth 2,520 ft.; 1,500 ft. oil in hole.

Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Shut down 4,545 ft.

White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ..... Shut down 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ..... Shut down 4,640 ft.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 25)

FREESTONE COUNTY

Raley and Clark's No. 1 McLancaster (Pampier), 150 ft. from E of W line and center of N and S line B. Avant Sur. ..... Derrick.

GREGG COUNTY

N. M. Acre et al's No. 1 S. J. Boles, 16 ft. S and 153 ft. E of SE cor. of William Carleton Sur. but in Carl Rhodes Sur. ..... Drlg. 2,700 ft.; top pay 2,531 ft.

Atlantic Oil Producing Co.'s No. 1 Duncan, 731 ft. from N and 1,250 ft. from W of 100-acre tract in D. Ferguson Sur. ..... Location.

Artic Petroleum Co.'s No. 1 King, 57 ft. S of most northerly NW cor. and 104 ft. E at right angles in 2-ac. tract, Chisum Sur. ..... Derrick.

Atlantic Prod. Co.'s No. 1 J. J. Fuller, 394 ft. from E and 343 ft. from S of 50-ac. tract and lease, Mowery Irwin Sur. ..... Derrick.

Atlantic Oil Prod. Co.'s No. 2 M. Haynes, 1,200 ft. from E lines of 548-ac. tract, W. C. Alvice Sur. .... Location.

Barnsdall Oil Co.'s No. 1 G. E. Adams, 1,150 ft. from S and 3,720 ft. from W of G. W. Hooper Sur. ..... Derrick.

Barnsdall Oil Co.'s No. 1 Ferguson, 104 ft. from S and 150 ft. from E of 37-acre tract in H. A. Hoket Sur... Derrick.

Bagby et al's No. 1 Key, 1,080 ft. from S and 265 ft. from E of Rigsby Sur. ..... Derrick.

Bramlette's No. 1 Goforth, 170 ft. due N of NW cor. of Sun-Hilburn-Lloyd lease in Chisum Sur. ..... Rigging up.

Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,840 ft. from S of H. A. Hoidt Sur. ..... Derrick.

M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Derrick.

Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur. .. Derrick.

Campbell and Lee's No. 1 A. Johnson, 170 ft. from N line and 134 ft. from E line of 11-ac. lease in the M. Dillard Sur. ..... Set 10-in. csg. 886 ft.

Columbia Oil & Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur. ..... Derrick.

Continental Oil Co.'s No. 1 J. J. Fiewellen, 350 ft. from N and 949 ft. from E of 200-ac. lease, Marshall Mann Sur. ..... Location.

Charles Davidson et al's No. 1 Paul Jones, 7,000 ft. from most southerly N line and 3,600 ft. from W, W. P. Chisum Sur. ..... Waiting on csg. 3,666 ft.

Eastland Oil & Gas Co.'s No. 1 B. B. Sparks, 150 ft. from N and 150 ft. from W of E 50 acres of 100-ac. tract, Harvey R. Kirk Sur. ..... Shut down 3,240 ft.

Empire Gas & Fuel Co.'s No. 1 Jeter, 440 ft. from E and 200 ft. N of right of way, Wm. Tyndale Sur... Location.

Dr. J. C. Falvey et al's No. 1 fee, 150 ft. from S and 150 ft. from W of 58-ac. tract, Marshall Mann Sur. ..... Cleaned and shut in.

Feagan & Saimon's No. 1 Thornton, 300 ft. E of Oriental Oil Co.'s No. 1 Alexander ..... Location.

F. H. E. Oil Co.'s No. 1 Clements, C of 10-acre tract, in Rhodes Sur. ..... Location.

Glasscock's No. 1 Jones, 150 ft. from S and W of 65-acre tract, in Chisum Sur. ..... Derrick.

Grossy et al's No. 1 Morgan, 325 ft. from N and 900 ft. of Martha Dillard Sur. ..... Derrick.

Greenwood & Josey's No. 1 Spurrier, 438 ft. from S and center E and W of 3-acre lease, Wm. Castleberry Sur. ..... Derrick.

Greer's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 45-ac. lease, 5,700 ft. from E and 850 ft. from N of survey, Henry Hathaway Sur. ..... Drlg. 3,250 ft.

Gulf Prod. Co.'s No. 1 Fonville, 330 ft. from S and E of 100-acre lease in Wm. Tyndale Sur. ..... Location.

Gulf Prod. Co.'s No. 1 Shephard, 330 ft. from S and W of most southerly SW cor. of Rains Sur. ..... Derrick.

Harper Petroleum Corp.'s No. 1 Woodley Jones, 2,000 ft. from N line and 3,900 ft. from E line of William H. Castleberry Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur. ..... Moving in material.

Humble Oil & Refining Co.'s No. 1 J. H. Sheppard, NE cor. of 215-ac. tract in I. Allen Sur. ..... Derrick.

Humble Oil & Refining Co.'s No. 1 J. M. McFarland, 1,400 ft. from N and 449 ft. from W lines of 57.5-ac. tract, L. J. Rigsby Sur. ..... Derrick.

Jackson et al's No. 1 Fee, 2,040 ft. from N and 2,000 ft. from E of M. Dillard Sur. ..... Derrick.

Johnston's No. 1 Williams, 125 ft. from N and W of 3-acre tract, Van Winkle Sur. ..... Derrick.

K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur. ..... Rig up and shut down.

Kiltner and Easterling's No. 1 Missie Young, 230 ft. S and 250 ft. E of SW cor. of the H. Edwards Sur. in the C. Rhodes Sur. ..... Rigging up.

Kimsey-Trimble's No. 1 Griffith Davis, 922 ft. E of N line of Griffith Davis 119.5-ac. tract from NW cor. of same and 145 ft. at right angles, W. P. Chisum Sur. ..... Set csg.; T. D. 3,670 ft.

Lockhart et al's No. 1 Jones, 200 ft. from N and center E and W of 19-acre lease in Hooper Sur. ..... Derrick.

Lone Star Oil Co.'s No. 1 Griffin, C of 2-acre lease, in Van Winkle Sur. ..... Drlg. 3,300 ft.

Charles Love et al's No. 1 J. B. Doby, 150 ft. from E and 150 ft. from S of S 6 acres of W 42 acres of 170-ac. tract, W. H. Castleberry Sur. ..... Derrick.

Magnolia Petroleum Co.'s No. 1 Carr, 990 ft. from N and W in M. McCurry Sur. ..... Set csg. 3,450-54 ft.; drlg. plug.

Magnolia Petroleum Co.'s No. 1 Key, 200 ft. from N and 150 ft. from E of 64-acre lease, John Ruddle Sur.. Derrick.

Mullendore & Berry's No. 1 Spear, 180 ft. E of road and 165 ft. S of N line of 15-acre lease, Mary Van Winkle Sur. ..... Drlg. 2,660 ft.

Oils, Inc.'s No. 1 Milas, 150 ft. from S and E of tract, John Ruddle Sur. ..... Derrick.

Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur. ..... Derrick.

Selby Oil & Gas Co. and Kistler's No. 2 Snavely, 1,640 ft. from S and 2,440 ft. from E of Wm. Lyndale Sur.. Rigging up.

H. P. Smith's No. 1 Elder & Son, 141 ft. from W line of lease and center N and S of 8-acre lease in Van Winkle Sur. ..... Derrick.

Earl Sneed et al's No. 1 A. M. Kensel, 293 ft. from N and 260 ft. from W of N 23-ac. lease in 94 acres, H. H. Kirk Sur. ..... Location.

Sun Oil Co.'s No. 1 J. W. Akin, 330 ft. from N and W lines of 25.68-ac. tract in George A. Thomason Sur. ..... Fishing pipe; T. D. 3,450 ft.

Superior Oil Co.'s No. 1 Pritchard, 330 ft. from N and W of 40-acre lease in Francis Johnson Sur. ..... Building derrick.

The Texas Company's No. 2 Dickson, 300 ft. from N and W of lease, Wm. McCurry Sur. ..... Location.

Tidal Oil Co.'s No. 1 Lake Divernia Fish and Game Club, 300 ft. from N and 550 ft. from W lines of tract in William G. Painter Sur. ..... Rig up.

Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ..... Derrick.

H. M. Wages et al's No. 1 Finley and Thomas, 165 ft. from E and 150 ft. from S of 10-ac. lease, Charles H. Alexander Sur. ..... Shut down 3,200 ft.

L. H. Wentz Oil Co.'s No. 1 G. W. Richie, 280 ft. S of NE cor. of W 20 acres of 40-ac. tract in the William Carlton Sur. ..... Top pay 3,519 ft.; T. D. 3,517 ft.; running tubing.

Ziegler Oil Co.'s No. 1 L. D. Campbell, 540 ft. from N and 219 ft. from E of 72½-ac. tract, David Ferguson Sur. ..... Derrick.

HENDERSON COUNTY

Seven Wells Corp.'s No. 1 Douglas, 767 ft. from N and 833 ft. from E of tract in K. H. Douglas Sur. ..... Drlg. 150 ft.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ..... Shut down 105 ft.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-acre tract in John Shears Sur. ..... Shut down 2,026 ft.

N. E. Irish's No. 1 Mrs. Byrdie Watters, 2,300 ft. W and 300 ft. S from the NE cor. of I. J. Ellis Sur. .... Shut down 53 ft.

Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ..... Shut down 620 ft.

Phillips and Phillips' No. 1 Kennedy Bros., 485 varas out of SW cor. of 100-ac. tract, Jose M. Procella Sur. ..... Rig up and shut down.

Snow's No. 1 Harron, 300 ft. out of NE cor. of 327-acre tract, J. P. Procella Sur. ..... Spudded and shut down 37 ft.

HUNT COUNTY

Foster and Earl's No. 1 Whitney and Clark, 150 ft. out of NW cor. of 50-ac. tract in W. H. Landrum Sur. .... Spudded and shut down.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignalius Aud Sur. ....Shut down 4,626 ft.
Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ....Ready to spud.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract ....Shut down 1,931 ft.
I. M. Hogg, trustee's No. 1 Stone, 156 ft. W of Highway No. 43 and 160 ft. from N line of survey in R. L. Moody Sur. ....Drlg. 4,500 ft.
Sun Oil Co.'s No. 2 Grayson ....Shut down 3,741 ft.
Sun Oil Co.'s No. 3 Grayson, 1,320 ft. from NE and 160 ft. from SE of tract, Marques Sur. ....Location.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 72-ac. tract, A. S. Young heirs Sur. ....Derrick.

NACOGDOCHES COUNTY

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ....Shut down 1,605 ft.
Burke et al's No. 1 F. R. Patterson, 6,515 varas from W and 315 varas from W line of Patterson 70-ac. tract, Joseph Las Santos Chay Sur. ....Shut down 4,204 ft.
Churchill-Armstrong's No. 1 Max W. Hart, 2,640 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur. ....Derrick.
Foreman and Weller's No. 1 Norris, 60 ft. NW of E line and 430 ft. S of road, in 73.5-ac. tract, Hosea Y. Barbo Sur. ....Derrick.
Foreman et al's No. 1 Robert Mattaner, NW cor. of 530-ac. tract, J. A. Cherino grant ....Drlg. 32 ft.
Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ....Cement 6⅝-in. 2,989 ft.; T. D. 3,007 ft.
Scully & Harwell's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 135-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ....Shut down 2,800 ft.
Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ....Shut down 3,920 ft.
Sequia's No. 1 Vanover, 6,072 ft. from N and 6,636 ft. from E of Alford Oliver Sur., E Boyd E 100-ac. tract ....Fishing 1,302 ft.
Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Herrera Sur. ....Shut down 250 ft.; shale.
Big Indian Oil Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. ....Shut down 50 ft.
L. E. Trout and Dison's No. 1 E. A. Blount, 150 ft. out of NW cor. of survey and tract, E. D. Williams Sur. ....Rig up and shut down.

RAINS COUNTY

Berry and Hale's No. 1 Ownsby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ....Preparing to start drlg.; T. D. 2,095 ft.

RED RIVER COUNTY

Royle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 660 ft. E of W line of survey, J. C. Brown Sur. ....Derrick.
Droppleman and Bundy's No. 1 J. W. Cunningham, 350 ft. from the S and 1,066 ft. from the E lines of B. M. Ballard Sur. ....Rig up.
Harris & Joiner's No. 1 E. Howison, 226 ft. E. 185 ft. W of 79-ac. tract, William Humphreys Sur. ....T. D. 2,216 ft.
Pearsons et al's No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ....Derrick.

ROCKWELL COUNTY

J. F. Barron's No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ....Waiting on csg.; T. D. 120 ft.

KILGORE AREA—RUSK COUNTY

Crider and Manley's No. 1 R. A. Metley, 600 ft. from S and 1,150 ft. from W of J. T. McDaniels Sur. ....Derrick.
Harry Elliott's No. 1 Carroll, 175 ft. from N and 200 ft. from E of 7-ac. tract, W. R. Cook Sur. ....Location.
State Production Co.'s No. 1 Gipson, 630 ft. from N and 175 ft. from E lines of tract in T. Lloyd Sur. ....Drlg. 2,900 ft.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ....Derrick.
British American Oil Co.'s No. 1 Cooper, 250 ft. from N and E of 45-acre lease in Cadene Sur. ....Shut down 2,800 ft.
Bullock's No. 1 Alford, 1,300 ft. from S and 150 ft. from W of survey, T. J. Moore Sur. ....Shut down 2,953 ft.
Campbell Oil Co.'s No. 1 Compton, 600 ft. from N and W line and Simon Del Rio Sur., 1½ miles NW of Minden ....Derrick.
Dunnigan and Holt's No. 1 Cansler, 150 ft. N and W of SW cor. Gabe McIlroy 16.3-ac. tract in F. Cordova Sur. ....Waiting on cement 3,712 ft.
Golding & Murchison's No. 1 Kelly, 515 ft. N and 410 ft. E of SE cor. of E. E. Moore 200-acre tract, Cadene Sur. ....Drlg. 850 ft.
Goude & Murray's No. 1 Priddey, C 2½-acre tract, Overton Townsite, W. T. Tutt Sur. ....Derrick.
C. C. Julian's No. 1 Motley, 780 ft. from N and 1,673 Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ....Shut down 3,300 ft.
H. C. McBride's No. 1 Sue Hale, 150 ft. from S and 150 ft. from W of Sue Hale 88-ac. tract, John Darley Sur. ....Set 12½-in. csg. 212 ft.
Nat Saddler's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ....Shut down 2,200 ft.
Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ....Rig blew down.
Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ....Shut down 2,900 ft.

SMITH COUNTY

Adams and Berry's No. 1 T. O. Wright, 150 ft. from N line and 150 ft. from E line of Juan Vargus Sur. ....Drlg. 3,100 ft.
Bailey Gaunce et ux No. 1 S. S. Cook, 150 ft. from S and 150 ft. from W of S. S. Cook 20-ac. tract in 189-ac. tract, Juan Vargus Sur. ....Shut down 2,360 ft.
Ben Banner's No. 1 Lee White, 925 ft. from E line and 1,200 ft. from N line of Abrahara H. Scott Sur. ....Shut down 3,350 ft.
Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 330-ac. tract, Calloway Dean Sur. ....Derrick.
Rex Cannon et al's No. 1 Buella Meanss ....Derrick.
Cotton Belt Oil Co.'s No. 1 C. S. Jackson 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. ....Drlg. 4,000 ft.
Deason Oil Co.'s No. 1 T. O. Wright, 1,440 ft. from N and 250 ft. from W of T. O. Wright 86-ac. tract, Juan Vargus Sur. ....6-in. set at 3,660 ft.
East Texas Investment Co.'s No. 1 Colored Methodist Church, James Jordan Sur. ....Shut down 2,408 ft.
John Hoosier et al's No. 1 W. T. Roberts et al, 300 ft. from N and 277 ft. from W lines of 13¼ acres in the Juan Vargus Sur. ....Csg. cmtd. 3,650 ft.; waiting on cement.
Hancock and McCarthey's No. 1 J. C. Cross, 300 ft. from E of road and 200 ft. N of S line of survey on a 13-ac. tract, Burbridge Sur. ....Shut down 72 ft.
McCarthy and Hancock's No. 1 Nellie Taylor, 350 ft. out of SW cor. of 73-ac. Taylor tract, F. M. Taylor Sur. ....Derrick.
Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Sharp, 530 ft. W and 1,170 ft. from S of most northerly NE cor. 482.67-ac. tract in the M. De Los Santos Sur. ....Set 6⅝-in. csg. 3,645 ft.
Miller et al's No. 1 McDavid ....Spudded and shut down.
Morrison's No. 1 I. Roy, 330 ft. N and E from SW cor. of 87-ac. tract in Henry Cools Sur. ....Shut down 3,900 ft.
Phillips & Phillips' No. 1 Anna Morrison ....Set 10-in. csg. 33 ft.; shut down.
Republic Production Co.'s No. 1 Scroggins, 1,150 ft. from N and 160 ft. from W lines of W. W. Simms Sur. on 10.7-acre lease ....Derrick.
M. M. Rowand et al's No. 1 Gibbons, 1,300 varas from W and 200 varas S of river (which is N line of survey), J. M. Garcia Sur. ....Shut down 3,610 ft.
Smith & Son's No. 1 S. S. Cooke, 1,875 ft. N and 331 ft. W from SW cor. D. Wright tract, Juan Vargus Sur. ....Drlg. 2,852 ft.
Sun Oil Co.'s No. 2 J. J. Denton, 250 ft. from N line and 425 ft. from E line of tract in the Juan Vargus Sur. ....Testing 3,711 ft.
The Texas Company's No. 3 Blackwell, 330 ft. from S and E lines of 100-ac. tract in James Jordan Sur. ....Location.
Gulf States Development Co.'s No. 1 S. S. Cooke, C of 5-acre tract and lease in James Jordan Sur. ....Shut down 3,710 ft.
Tytex Oil Co.'s No. 1 Alex Weidert, 2,030 ft. from S and 525 ft. from E lines of Franklin T. Bodenheimer Sur. ....Derrick.
Vitex' No. 1 Irion, 150 ft. from S and E lines of 50-ac. tract in Mary Hughes Sur. ....Shut down 1,185 ft.
Yarber et al's No. 1 R. G. Wright ....Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ....Drlg. 2,248 ft.
Joiner et al's No. 1 Clayton Brown ....Shut down 2,250 ft.
Venza Oil Co.'s No. 1 McGill, 450 ft. from S and 662 ft. from W of H. C. Riggs Sur. ....Drlg. 5,605 ft.

UPSHUR COUNTY

Arcadia Refining Co.'s No. 1 Victory, 2,300 ft. from W and 900 ft. from S lines of E. A. J. Evans Sur. ....Drlg. 3,250 ft.
Alma Petroleum Co.'s No. 1 J. W. L. Yount ....Cleaned and shut in; T. D. 3,649 ft.
Barkley et al's No. 1 J. B. Webb, 330 ft. from SE cor. of 31-ac. lease on 76-ac. tract, G. W. Hooper Sur. ....Cleaned and shut in 3,719 ft.
Bogle et al's No. 1 Victory et al, 420 ft. from E and 280 ft. from S of lease and most northern NE cor. of tract, E. A. J. Evans Sur. ....Rigging up.
Brookins-Mitcham et al's No. 1 Free, approximately 1,320 ft. from N and 4,850 ft. from E of Hooper Sur. ..Rigging up.
Cockrell et al's No. 1 C. A. Lee, 150 ft. from S and 150 ft. E of 26½-ac. tract, W. L. Palmer Sur. ....Derrick.
Callahan et al's No. 1 Lee R. Kay, 660 ft. from N and E lines of Charles O'Neal Sur. ....Derrick.
Calhoun et al's No. 1 J. R. Penn, 266 ft. from S line and E line of Penn 104-ac. tract, Joseph Manning Sur. ....Shut down 3,718 ft.
Compton and Letts' No. 1 J. C. Wilsford, 300 ft. from E line and 2,700 ft. from S line of survey, L. Lomzollas Sur. ....Spudded and shut down.
Cole and Butler's No. 1 D. F. Guest, 300 ft. out of NE cor. of Guest 129-ac. tract and survey ....Derrick.
Dailly Oil & Gas Co.'s No. 1 B. F. Phillips, 200 ft. out of SE cor. of 64-ac. tract, P. Whitestone Sur. ....Derrick.
Glasscock et al's No. 1 C. C. Londers, 115 ft. from N and 130 ft. from E lines of 2.33-ac. tract in G. W. Hooper Sur. ....Coring 3,626 ft.
Home Oil Co.'s No. 1 F. D. Futrell, 150 ft. out of SW cor. and 520 ft. from E and 400 ft. from S line of 7.6-ac. tract, A. Lumbrara Sur., south of Gilmer ....Washing; T. D. 2,396 ft.
Humble Oil & Ref. Co.'s No. 1 Reves, 450 ft. from S and 324 ft. of 28-acre tract in G. W. Hooper Sur. ....Location.
Humble Oil & Ref. Co.'s No. 1 Johnson, 330 ft. from S and W of 100-acre tract of G. W. Hooper Sur. ....Location.
Humble Oil & Refining Co.'s No. 1 M. Mattox, 200 ft. from S and E lines of 61.6-ac. tract in J. Pineda Sur. ....Derrick.
J. A. Johnson's No. 1 J. T. Miller ....Drlg. 3,595 ft.
A. D. King's No. 1 Lloyd, 156 ft. from N line of survey and 2288 ft. from E line of 4-ac. tract, D. Sanches Sur. ....Shut down 2,105 ft.
Lotts Bros. et al's No. 1 C. B. Jones, 200 ft. from N and 165 ft. from E lines of 50-ac. tract in the Henry W. Augustine Sur. ....Drlg. 2,500 ft.
G. P. Mitcham's No. 1 J. B. Bland, 165 ft. from E and 650 ft. from S of 62½-ac. tract and 15-ac. lease, G. W. Hooper Sur. ....T. D. 2,708 ft.; cleaned and shut in.
Smith Bros.' No. 1 J. W. Davis, 400 ft. from N and 800 ft. from W lines of S 200 acres of J. W. Davis 280-ac. tract in John Burleson Sur. ....Set 10-in. at 97 ft.
J. R. Smith's No. 1 J. B. Webb, 200 ft. N and 489 ft. W of SE cor. of W 20 acres of 71-ac. tract, G. W. Hooper Sur. ....Derrick.
Sorrels & Duffey's No. 1 W. Wooden, 200 ft. from E and 200 ft. S of survey, Isham Williams Sur. ....Drlg. 3,480 ft.
Sun Oil Co.'s No. 1 Hargrove, 250 ft. from S and 320 ft. from E lines of 200-ac. tract in Marshall Mann Sur. ....T. D. 3,709 ft.; cleaned and shut in.
Sun Oil Co.'s No. 2 Watkins, 1,220 ft. N and 1,360 ft. W of most southerly SE cor., Jose Rinoda Sur. ....Location.
Wheeler et al's No. 1 Webb, 300 ft. from N and 100 ft. E of road, approximately 4,840 ft. from W and 1,920 ft. from N of Hooper Sur. ....Rigging up.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out off NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. ....Spudded and shut down 300 ft.
Hart Petroleum Corp.'s No. 1 M. L. Cox, 1,785 ft. N of S line and 524 ft. E of W line of Cox 300-ac. tract in Nugent Headright Sur. ....Shut down 2,085 ft.
H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ....Dry and abandoned 3,098 ft.
Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ....Shut down 2,300 ft.
Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ....Shut down 2,450 ft.
W. P. Palmer et al's No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ....Shut down 3,000 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ....Shut down 2,860 ft.

WOOD COUNTY

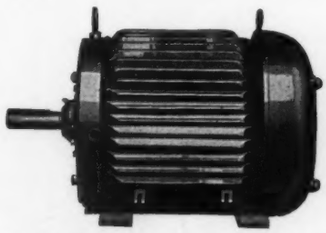
Brennan and Wood's No. 1 L. W. Minga, 300 ft. from NW cor. of survey and tract, Moses Stripling Sur. ..Derrick.
Wood County Dev. Co.'s No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. ....Shut down 2,008 ft.
Main Holding Co. and Thelma Wells' No. 1 Stewart, 1,938 ft. from NE and 2,898 ft. from E line of survey, E. Rehorse Sur. ....Shut down 610 ft.
Vitek Oil Co.'s No. 1 Rosa Bogel, 250 ft. from N and 500 ft. from W of survey, Sarah English Sur. ....Shut down 2,760 ft.

The new "LINC-WELD"

...totally enclosed, fan cooled motor has more radiating surface than any other...

"What of it?"

"A cooler motor . . . more overload capacity . . . the stainless steel corrugations do it."



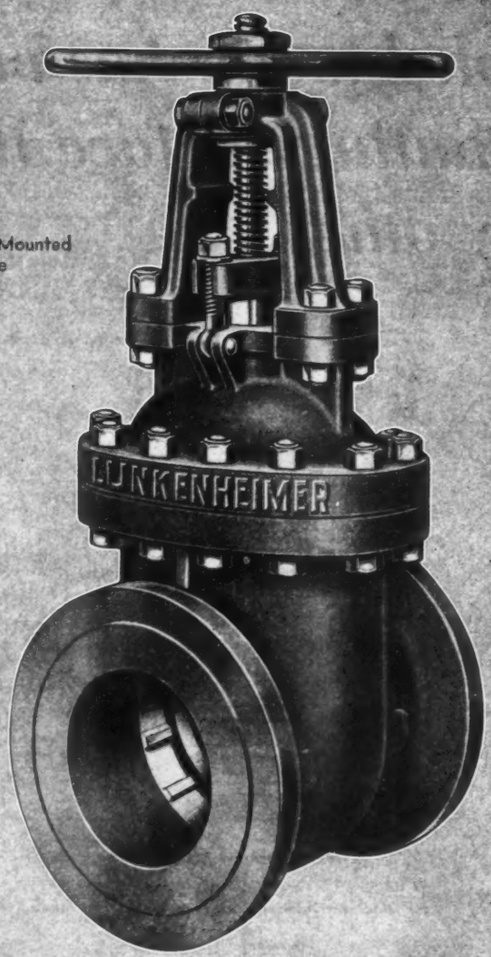
"Linc-Weld" totally enclosed fan cooled motor with cover removed to show the deeply corrugated stainless steel which provides the larger radiating surface.

THE LINCOLN

ELECTRIC COMPANY . . Cleveland, Ohio

M-67

LUNKENHEIMER



Iron Body Bronze Mounted
Gate Valve

Buy from the local
Lunkenheimer Distributor

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO BOSTON PHILADELPHIA
PITTSBURGH SAN FRANCISCO LONDON
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

6-64-91

931

Se

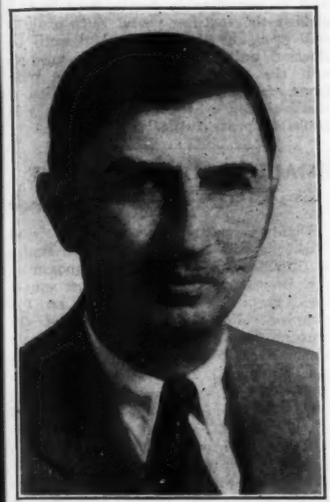
D

te

Brief Items for Petroleum Refiners

Doctor Sidney Born Appointed Professor Petroleum Research

Dr. Sidney Born, who resigned September 1 as assistant general superintendent of refineries for the Marathon Oil Co., has been appointed professor of petroleum research in the school of petroleum engineering, of the University of Tulsa. Doctor Born also will engage in a general consulting practice.



Dr. Sidney Born

He has had a wide experience in research work since graduating from Columbia University, where he obtained both his Bachelor of Science and Doctor of Philosophy degrees. After several years he joined the Rittman Process Corp. as chief chemist. He assisted in the development of several well-known cracking processes, particularly vapor phase cracking.

Doctor Born became chief chemist for the Empire Refineries, Inc., and associated companies in 1916 and remained with that organization until 1920, when he joined the Transcontinental Oil Co. as assistant general superintendent of refineries. He remained with that company after it was bought by the Ohio Oil Co. in 1930 when its name changed to Marathon Oil Co.

During the war Doctor Born was appointed consulting engineer for the Bureau of Mines and assisted in the design of furnaces used to produce war materials. Doctor Born also is the inventor of several cracking process operations, and holds numerous patents on the synthesis of alcohol and various organic compounds from petroleum.

Doctor Born is a Sigma Xi and Phi Lambda Upsilon, a member of the Chemist's Club of New York, and was the first counsellor for the Oklahoma section of the American Chemical Society. Doctor Born will maintain his consultation offices at the university.

WYOMING REFINERY FIRE

LA BARGE, Wyo., Sept. 15.—The Orcana refinery in the LaBarge Field, southwestern Wyoming, has been completely destroyed by a fire which was caused when a valve blew out. About 200 bbls. of gasoline was destroyed, and 550 bbls. of crude oil. Total damage was estimated at about $6,000. The refinery is to be immediately rebuilt.

COLLECTORS ADMIT GASOLINE TAX EVASION IS INCREASING

DENVER, Colo., Sept. 12.—The need for uniformity in systems of collection and administration of the gasoline taxes and in oil inspection among the states was stressed at the sixth annual meeting of the North American Gasoline Tax Conference held here this week. Model bills to promote this object and to provide for reciprocity agreements between the states were presented and discussed. The "bootlegging" of gasoline in order to evade the payment of the tax was admitted by collectors to be widespread and on the increase and was causing vast trouble in bringing about the enforcement of the laws.

The conference was called to order at 9:30 o'clock Wednesday morning at the Shirley-Savoy Hotel by President A. N. Bobbitt of Indianapolis. Registrations were made from 25 states and among those present were not only representatives and heads of tax collection agencies, but of several of the major oil companies. After the formal addresses of welcome by state and city officials and responses, the conference went directly into the business at hand. The major address for the morning was by J. H. Hill, chief attorney for The Texas Company in Oklahoma and Kansas on "Gasoline Tax Collections from the Standpoint of the Taxpayer."

After tracing the growth of gasoline taxes from the adoption of the first tax in Oregon in 1919, he pointed out how it had grown until now every state had such a tax and that the average collection was at the rate of 4 cents per gallon. In addition to the state tax, many towns and cities and counties had adopted a gasoline tax. Also, the primary purpose of the tax to aid the construction and maintenance of roads had grown until funds were now being diverted for every purpose from charity to fish propagation.

"The use of every article is affected by its cost," he said. "If it is cheap, its use expands; if dear, its use contracts; if too high, the public will refuse to buy and substitutes will be developed and introduced. Every penny added to the price of gasoline gives that much incentive to the motor manufacturer to produce an engine which will use the minimum of fuel, or one that will use some other and cheaper fuel than gasoline. On the other hand, if gasoline is sold at a tax-free price, the motor manufacturer would devote his efforts to other improvements."

Gasoline tax evasion, from the viewpoint of the marketer, he said, is a still greater offspring from the present extortionate rates. The speaker then went extensively into the question of tax evasion, pointed out numerous examples of how it was being done and its effect on the gasoline market. In the discussion that followed almost every collector present admitted that he experienced vast trouble in enforcing the law and that tax evasion was becoming widespread and difficult to enforce. Argument was presented with considerable force that evasions were much less pronounced in states

(Continued on Page 103)

BUILDING WEST TEXAS PLANT IN PECOS VALLEY

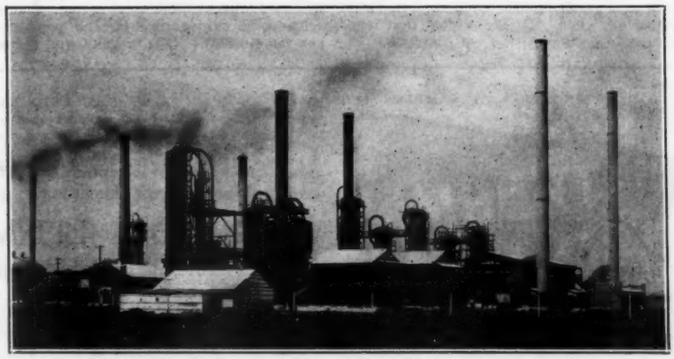
SAN ANTONIO, Tex., Sept. 15.—Charles S. Messenger and other producers in the Pecos Valley Pool in Pecos County of West Texas were completing a refinery with a daily capacity of 1,500 bbls. It is in Section 54, Block 10, H.&G.N. Survey, where Messenger two weeks ago drilled in a producer, No. 1 Butz, for a daily average of 62 bbls. The refinery will be supplied with crude from the Butz and Turmes leases. While Messenger's No. 1 Byrne, a producer, was being cleaned out this week gas blew 800 feet of 2-inch tubing out of the hole. Messenger and other operators recently completed a pipe line to Ward County, joining there with a Wickett 4-inch line to a refinery at Wickett.

TAX EVASION RACKET

CHICAGO, Sept. 14.—Plans of gasoline bootleggers to organize a racket among independent distributors and retailers through strongarm methods with immunity promised in a system of bribery and violence, are revealed in the evidence which is amassing in the offices of State's Attorney Swanson, who has four assistants devoting all their time to gasoline tax evasion cases.

One of the assistants reports that he has been offered $10,000 to "lay off." Various attorneys representing tax evaders are offering evidence against other evaders in return for immunity. One attorney offered to disclose bribes paid to officials.

WHITE EAGLE COMPLETES IMPROVEMENT PROGRAM



View of improvements recently installed and now operating at the Augusta, Kans., refinery of the White Eagle Petroleum Corp. Improvements include a 5,000-bbl. topping unit and a 10,000-bbl. pressure distillate rerun unit of the Badger type. Two cracking units with a capacity of 4,000 bbls. daily were installed by the White Eagle corporation. Other improvements include a Marley water cooling tower with a capacity of 5,000 g.p.m.

DR. DUNSTAN ADVOCATES UNIFORM KNOCK TESTING

NEW YORK, Sept. 12.—Worldwide Standardization in knock testing was advocated by Dr. E. A. Dunstan, F.I.C., chief chemist of the Anglo-Persian Oil Co., in an address before the recent Oil and Fuel Congress held in connection with the International Colonal Exposition in Paris.

Doctor Dunstan declared that an agreement had been reached between British and American oil interests at a conference held last December between the detonation subcommittee of the American Co-operative Fuel Research Committee and a British subcommittee, appointed by the Institution of Petroleum Technologists, consising of himself, J. Kewley, M.A., F.I.C., chief chemist of the Asiatic Petroleum Co., Ltd., and Dr. F. H. Garner, F.I.C., chief chemist for the Anglo-American Oil Co., Ltd. The matters discussed at this conference, Doctor Dunstan said, were the ideal standard

(Continued on Page 103)

ISSUE UNIVERSAL OIL PATENT ON FLASHING

Thirteen years of litigation in the Patent Office ended on August 25, 1931, in the issuance to Universal Oil Products Co., as assignee of Carbon P. Dubbs, the inventor of a patent covering the so-called flashing operation in conjunction with the cracking of oil. The patent is No. 1,820,057.

The flashing operation as is generally known consists in operating a cracking unit in such a manner that the cracked residue continuously passes from the high pressure cracking zone into a flash chamber in which the pressure is reduced, and the flashed distillate returned for further cracking.

The purpose of this method of operation is to prolong the cracking cycle by avoiding the formation of coke in the reaction chamber and consequently the frequent shut downs necessary for clean-

(Continued on Page 103)

REDUCE PIPE LINE RATES

The Prairie Pipe Line Co. and the Sinclair-Texas Pipe Line Co. have been granted permission by the Interstate Commerce Commission to establish a joint pipe line rate of 15 cents per barrel on crude oil from points in Oklahoma and Texas to Coffeyville, Kans., and a rate of 30¾ cents to Kansas City, Kans. The Sinclair Refining Co. has refineries in operation at both Coffeyville and Kansas City. The rates do not include the usual 20 cents per barrel gathering charge.

The rate will become effective September 19. The rates will cover the movement of East Texas crude oil to the Kansas points. In their application for the rates the companies stated that they were needed due to conditions brought about by martial law in Oklahoma and Texas. It was said that unless the Texas crude oil was made available it would be necessary to curtail or shut down the refineries at the Kansas points.

NEW LUB OIL PLANT

NEW YORK, Sept. 12.—Imperial Oil, Ltd., has placed in operation at its Sarnia, Ontario, refinery a new unit for the production of high grade lubricating oil. The process used in the new unit, which was built at a cost of close to $1,000,000, is one developed during five years of research work by Dr. R. K. Stratford, chief of technical and research work for the company.

Manufacture of Natural Gasoline

ELECT O. C. FIELD, N. G. A. VICE PRESIDENT

At a meeting of the board of directors of the Natural Gasoline Association of America in Tulsa last week. O. C. Field

O. C. Field

of Los Angeles, Calif., was elected vice president of the association. Mr. Field will represent the California manufacturers and succeeds W. W. Robinson, Jr., of The Texas Company of California. Mr. Robinson, who has been active in natural gasoline association activities for several years, resigned due to his recent transfer to the eastern research department of The Texas Company.

Mr. Field is president of the O. C. Field Gasoline Corp., operators of natural gasoline plants in California fields. He has taken an active interest in the work of the California Natural Gasoline Association and was recently elected president of the association for the coming year.

LINE TAPPING BECOMES MORE SERIOUS PROBLEM

Natural gasoline plant superintendents are being forced to place line walkers in the field to minimize losses by theft of substantial quantities of gasoline, especially where the loading lines extend some distance from the plant. Several thousand gallons a day have been lost by plants in the Seminole area. Thief catchers, a mechanical device which detects loss in line pressures, have been placed in the loading lines in many instances and the culprits have been caught in a few cases. This did not seem to stop the practice however. In the cases cited the thief apparently punked a hole in the line and coupled on a strap and connected into the line sufficient tubing to fill some oil drums loaded on a truck. The gasoline carried away represented a small portion of the total loss because the leak was allowed to flow until found by the operators. In some places the hole was drilled or punched through the pipe and as the gasoline stream fell it was caught in barrels.

From 4,000 to 7,000 gallons have been lost in each instance and the practice threatens to cause a considerable loss in money as a result of waste rather than the loss of the gasoline which is taken. It is believed that the gasoline is being sold to "bootleg" marketers who in turn are thus able to evade the state tax.

INVESTIGATE USE OF METHANE AS A METALLURGICAL REAGENT

As the natural gasoline manufacturers seek new outlets for their products and by-products quantity outlet continues as a limiting factor as an inducement to investigate the possibilities and develop the mechanical devices necessary to adapt the processes to the new material. In many instances, the interests of the gasoline manufacturer and the distributor of natural gas are in common but any new outlets for natural gas means that the value of the residue gas has been enhanced in value proportionately and a gasoline manufacturer has found he must now sell his residue gas in order to make a profit from his overall operations.

The possible use of methane and other light gaseous hydrocarbons for the reduction of metals is being investigated and if developed will afford an outlet for very large quantities of gas. In a recent meeting of the American Chemical Society C. G. Maier of the U. S. Bureau of Mines explained the factors which enter into an investigation of the problem of utilizing methane as a metallurgical reagent. In part Mr. Maier said:

"Important elements whose oxides may be reduced with methane under conditions of technical and commercial suitability are sulphur, iron and zinc. It may be stated with perhaps some dogmatism that these reductions show great similarity. The thesis is that such reactions are only rapid or satisfactory in heterogeneous systems, and in this sense are all catalytic. Thus sulphur dioxide and methane in a strictly homogeneous system are unreactive even up to 1,000° C., but the reduction proceeds smoothly and rapidly in the presence of alkaline earth sulphides as specified in the original patents of the dry-thiogen process.

"Iron, nickel and cobalt are catalysts for the thermal decomposition of methane, or its synthesis from hydrogen and carbon, but the recent results show that oxides of iron may be reduced nearly to completion with but little formation of free carbon. From a rate point of view, this can only mean that the reaction rate of methane with the oxides must be greater than the catalyzed rate of thermal decomposition. The conditions suitable for the reduction of oxides by methane are more or less definitely critical. Compared to other reducing agents, as hydrogen or carbon monoxide, methane is but sluggishly reactive at temperatures lower than 900° C., but attempts to increase rates by the use of higher temperatures may result in carbon formation, and are undesirable from a practical point of view. It is known that the thermal decomposition of methane is autocatalytic. In spite of the ideas of some metallurgists that carbon as such is a reducer for solid oxides, it seems certain that on account of the autocatalytic nature of methane decomposition, this side-reaction must be avoided if successful use of methane is to be made for reducing oxides.

"The practical metallurgist has not become proficient in the control of heterogeneous reactions that are largely catalytic. The control of combustion, or of the roasting of sulphide ores, has involved rather simple problems of dampers and the bedding of the solid phase. Critical studies of the physical chemistry of combustion have only been made effective recently in connection with powdered fuels, and it is to be hoped that the present interest in 'flash' roasting may lead to similar efforts for sulphides. Such simple expedients as dampers do not suffice for the satisfactory control of reduction of solid oxides by methane, and are even further removed from the strictly catalytic reduction of gaseous oxides such as sulphur dioxide, by methane.

"The fact that the rate of reduction of oxides by methane is faster than the rate of thermal decomposition in a limited field, may only be utilized by securing careful balance between diffusion as compared to reaction rates. Film coefficients, both from the chemical and thermal point of view, are involved, and must be controlled. The temperature of reaction may be considered fixed by thermodynamic considerations, and presumably the specific reaction rates as found are not capable of great variation.

"These latter must be accepted as found within the fields of stability required by the thermodynamic conditions. It must be admitted that these rates are essentially slower than those usually encountered in metallurgical reduction reactions, and there seems to be very little that can be done about this factor. The successful methane reducer unit will be of large cubic content, and will operate at low space velocities."

In conclusion, the authors said:

"Obvious economic advantages in the use of methane as reducer are apparent from simple considerations of the stoichiometric relations of the reduction reactions in relation to the cost of methane. Less obvious advantages depend on the lower temperatures utilizable with methane as compared to solid carbon as reductant. It may be generally assumed that elementary carbon reacts with solid oxides through the producer gas reaction $C + CO_2 = 2CO$, and many experimenters have shown this latter to be slow below 1,000° C. Methane reductions become thermodynamically possible and appreciable in rate at temperatures not greatly above 800° C. The considerable number of experimental projects now in progress at smelting or chemical plants looking toward the metallurgical uses of natural gas seem certain to result in considerable development in this field in the next few years. Such projects will probably not be successful until reduction units are specially designed to suit the peculiarities of methane reactions. Attempts at direct substitution of methane for other reducing media will probably prove futile."

SMALL VOLUME GASOLINE ABOVE 12 POUNDS V. P.

Eighty-three and seven-tenths per cent of the gasoline sold in the United States at filling stations has a Reid vapor pressure between 7 to 10.5 pounds per square inch, according to tests made on 312 samples collected in all parts of the country. This survey was made as a part of the regular semiannual report on motor fuel quality of the Bureau of Mines.

Twenty-eight samples were tested which had a vapor pressure in excess of 10.5 pounds while 22 samples had vapor pressures below 7 pounds. All samples with the exception of five met the Government's new vapor pressure specification of 12 pounds maximum. These samples were purchased from filling stations in Cleveland, Chicago and Minneapolis.

Because the samples were collected during March of this year the high vapor pressure on these samples might be accounted for by the fact all of these cities are in the colder portion of the country where larger volumes of light ends are required in the motor fuel for quick starting.

The belief that the location of the cities influenced the type of motor fuel sold is substantiated by a further analysis of the accompanying table. This shows that with the exception of one sample collected in Tulsa all samples having a vapor pressure of 11.6 pounds or more were taken in cities in the colder areas.

Of the different clasifications the most samples are shown under the range of 9.1 to 9.5 pounds. Only 62 samples show a vapor pressure in excess of this range.

A factor which must be taken into consideration in reviewing these results is that all tests were made at one point and because of the different atmospheric pressure in the various cities it is not possible to state exactly what samples would not have passed the new government specifications. The following table outlines the results of the vapor pressure tests made on the 312 samples collected in 20 scattered cities.

CLASSIFICATION OF SAMPLES ACCORDING TO RESULTS OF THE REID VAPOR-PRESSURE TEST, ALL SAMPLES

City—	Reid vapor pressure—pounds per square inch															
	13.5 to 13.1	13.0 to 12.6	12.5 to 12.1	12.0 to 11.6	11.5 to 11.1	11.0 to 10.6	10.5 to 10.1	10.0 to 9.6	9.5 to 9.1	9.0 to 8.6	8.5 to 8.1	8.0 to 7.6	7.5 to 7.1	7.0 to 6.6	6.5 to 6.1	Less than 6.1	Total
Boston	....	....	....	....	....	1	2	3	4	1	2	1	2	....	....	....	16
New York	....	....	....	....	1	1	1	6	2	1	2	1	1	....	....	....	16
Washington	....	....	....	....	....	2	1	3	3	1	5	3	1	....	1	....	20
Pittsburgh	....	....	....	....	....	1	3	3	1	5	2	1	1	....	....	....	16
Atlanta	....	....	....	....	....	....	....	....	3	4	1	4	2	1	....	1	16
Cleveland	1	1	....	....	....	....	5	3	2	....	1	2	1	....	....	....	16
Chicago	1	1	....	1	2	1	3	2	5	1	2	1	....	....	....	....	20
New Orleans	....	....	....	1	1	....	1	1	2	2	1	2	2	1	1	1	16
St. Louis	....	....	....	1	1	3	2	1	4	2	2	2	....	3	....	....	20
Minneapolis	....	....	1	....	....	1	2	3	2	3	1	2	....	....	1	....	16
Omaha	....	....	....	1	1	....	4	1	2	1	3	2	1	....	....	....	16
Tulsa	....	....	....	....	1	1	3	3	4	2	2	....	....	....	....	....	16
Dallas	....	....	....	....	....	....	2	....	2	1	2	3	4	1	1	....	16
Denver	....	....	....	....	1	....	....	....	2	....	1	2	....	1	....	....	8
El Paso	....	....	....	....	....	....	....	....	....	1	2	2	4	....	....	3	12
Salt Lake City	....	....	....	....	....	....	2	4	1	1	2	1	....	....	....	1	12
Seattle	....	....	....	....	....	....	1	2	3	4	1	....	4	1	....	....	16
Los Angeles	....	....	....	....	....	1	....	1	2	6	2	4	4	3	....	....	24
San Francisco	....	....	....	....	1	....	1	2	4	4	1	5	1	....	....	1	20
Total	2	2	1	4	9	11	33	37	49	40	35	39	28	11	4	7	312
Per cent of total	0.6	0.6	0.3	1.3	2.9	3.5	10.6	11.9	15.7	12.8	11.2	12.5	9.0	3.5	1.3	2.2	100

LIMBERT *Builds* PIPING

for every refinery service—for every pressure and temperature

A typical cracking still installation using Limbert fabricated pipe throughout.

FOR A THIRD OF A CENTURY leading engineers here and abroad have turned to Limbert for their most difficult piping requirements. Limbert fabricated pipe and special steel fittings are serving leading power and refining plants the world over.

SUPERIOR PLANT FACILITIES. The Limbert fabricating shop has a very large capacity for this difficult type of work, and is located in the heart of the Chicago steel district, at East Chicago. Limbert reputation for quality work is a by-word among pipe specialists.

FAST PRODUCTION FACILITIES enable Limbert to give unequalled service where quick delivery is essential. Special fittings in cast iron, semi steel or cast steel, which are the items causing most delay on any job, are made right in Limbert's plant from their own patterns.

OUTSTANDING ENGINEERING SERVICE has always been a feature of Limbert facilities. Limbert engineers are ready to assist you in any possible way in manufacture or in design. Every Limbert job is completed under the supervision of an engineering staff of specialists who, day after day, are producing piping for the most extreme requirements of pressure and temperature.

Use Limbert to manufacture standard or to design and manufacture special piping requirements for your hardest jobs.

GEO. B. LIMBERT & COMPANY

570 Fulton St., Chicago, Ill.

St. Louis Kansas City, Mo.

Detroit, Mich.

Works: East Chicago, Indiana

LIMBERT PIPING

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Sept. 15		Sept. 8		Sept. 1	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.03½	.04	.04¼	.04½	.04½	
56-58 450 endpoint	.03½		.04	.04⅜	.04½	.04¾
58-60 437 endpoint (U. S. Motor)	.03½	.04½	.04¼	.05	.04¾	.05¼
60-62 437 endpoint	.03½	.04½	.04¼	.05	.05	.05¼
60-62 400 endpoint	.03¾	.04½	.04½	.05	.05⅛	.05⅝
64-66 375 endpoint	.04	.05	.04¾	.05¼	.05¼	.05½
68-70 360 endpoint	.04¼	.05	.05	.05¼	.05½	.05⅝
64-66 437 endpoint (blend)	.03½	.03¾	.04¼	.04½	.04½	.04¾
NORTH TEXAS—						
50-52 450 endpoint	.03¼	.03½	.04	.04¼	.04½	
58-60 450 endpoint	.03¼		.04	.04¼	.04½	.04¾
58-60 437 endpoint (U. S. Motor)	.03¼	.03½	.04	.04¼	.04⅞	.05
60-62 400 endpoint	.03½	.03⅝	.04¼	.04¾	.05	.05⅛
64-66 390 endpoint	.03¾	.03¾	.04½	.04¾	.05⅛	.05¼
64-66 375 endpoint	.03⅞	.04¼	.04¾	.05	.05⅝	
68-70 360 endpoint	.04	.04½	.05	.05¼	.05½	
64-66 437 endpoint (blend)	.03¼	.03½	.04¼	.04½	.04⅝	.04¾
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.04½		.05	.05¼	.05¼	.05⅜
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.04½	.04¾	.05	.05¼	.05¼	.05⅜
PENNSYLVANIA—						
52-54 Naphtha	.05		.05		.05	
54-56 Naphtha	.05		.05		.05	
58-60 Gasoline	.05¾		.05¾		.05¾	
60 Gasoline	.05¾		.05¾		.05¾	
62 Gasoline	.05¾		.05¾		.05¾	
64 Gasoline	.05⅞	.06	.05⅞	.06	.05⅞	.06
68-70 350 endpoint gasoline	.06¼	.06½	.06¼	.06½	.06¼	.06½
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.04½	.05½	.05½	.06½	.05½	.06¾
58-60 400 endpoint domestic gasoline	.05	.06	.05¾	.07	.05¾	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.03	.03½	.04	.04½	.04½	.04¾
58-60 437 endpoint (U. S. Motor)	.03⅛	.04	.04¼	.04½	.04⅝	.05½
60-62 400 endpoint	.03⅛	.04	.04¼	.04½	.05¼	.05½
64-66 375 endpoint	.03½	.04	.04⅞	.05	.05½	.05¾
68-70 360 endpoint	.04	.04½	.05	.05¼	.05½	.05⅝
64-66 437 endpoint (blend)	.03	.03¼	.04¼		.04½	
‡GULF COAST (Export)—						
58-60 U. S. Motor	.05		.05		.05	
60-62 400 endpoint	.05½		.05½		.05½	.05¼
61-63 390 endpoint	.05¼		.05¼		.05½	
64-66 375 endpoint	.05½		.05½		.05½	

*Louisiana, Arkansas and Mississippi delivery. †For Pacific Coast consumption. ‡Due to a misunderstanding covering reports of prices by branch offices, the Gulf Coast export gasoline prices were incorrect as published in the August 27 and September 3 issues. The prices as of August 25 in August 27 issue and for September 1 in September 3 issue should have been the same as published in this issue for September 15 and September 8.

NATURAL GASOLINE

	Sept. 15		Sept. 8		Sept. 1	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03⅞	.04	.04½	.04½	.05¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03⅞	.04	.04¼		.05	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03⅞		.04¼		.04⅞	
Grade BB, 84-92, 375 e.p., rec. 85%	.03⅞		.04¼		.04¾	
Grade C, 80-92, 375 e.p., rec. 78%	.03⅞		.04¼		.04¾	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03⅝	.03¾	.04¼		.05	.05¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03⅝		.04		.04¾	.05
Grade B, 76-83.9, 375 e.p., rec. 85%	.03⅝		.04		.04¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.03⅝		.04		.04¾	
Grade C, 80-92, 375 e.p., rec. 78%	.03⅝		.04		.04¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.04		.04¼		.05¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.04¼		.05¼	
Grade C, 80-92, 375 e.p., rec. 78%	.04		.04¼		.05⅛	.05¼
CALIFORNIA—						
75-78 375-390 endpoint	.04½	.05	.04½	.05	.04½	.05¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.04¼		.05¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¾		.04¼		.05	.05⅛
Grade BB, 84-92, 375 e.p., rec. 85%	.03¾		.04¼		.04¾	.04⅞

BURNING OIL

	Sept. 15		Sept. 8		Sept. 1	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.02	.02⅛	.02	.02⅛	.02	.02⅛
42-44 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—						
41-43 water white kerosene	.01⅞	.02	.01⅞	.02	.01⅞	.02
40-41 water white kerosene	.01¾	.01⅞	.01¾	.01⅞	.01¾	.01⅞
***NORTH LOUISIANA—**						
41-43 water white kerosene	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
***ARKANSAS—**						
41-43 water white kerosene	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
PENNSYLVANIA—						
43 Kerosene prime white	.03⅝		.03⅝		.03⅝	
45 Kerosene water white	.03½		.03½		.03½	
46 Kerosene water white	.03⅞		.03⅞		.03⅞	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.05	.04	.05	.04	.05
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.01⅞	.02	.02	.02½	.02	.02½
42-44 water white kerosene	.02	.02⅛	.02⅛	.02¼	.02⅛	.02¼
GULF COAST (Export)—						
41-43 prime white	.03½		.03½		.03½	
44 prime white	.03½	.03¾	.03½	.03¾	.03½	.03¾

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Sept. 15		Sept. 8		Sept. 1	
OKLAHOMA (Group 3)—						
Below 18 gravity Fuel Oil, per bbl.	.22½	.27½	.22½	.27½	.22½	.30
18-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
20-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.27½	.32½
24-26 Fuel Oil, per bbl.	.32½	.37½	.32½	.37½	.32½	.37½
26-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
28-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
32-36 Gas Oil (industrial)	.01⅛	.01¼	.01⅛	.01¼	.01	.01⅛
32-36 Gas Oil (straw color, high cold test)	.01⅛	.01¼	.01⅛	.01¼	.01	.01⅛
32-36 Gas Oil (straw color, low cold test)	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
36-38 Distillate	.01⅜	.01½	.01⅜	.01½	.01⅜	.01½
38-40 Straw Distillate	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝
Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less.						
NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.20	.25	.20	.25	.20	.25
24-26 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
32-36 Gas Oil (industrial)	.00⅞	.01	.00⅞	.01	.00⅞	.01
38-40 Straw Distillate	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.45	.55	.45	.55	.45	.55
30-32 Gas Oil (low cold test)	.01½	.01¾	.01½	.01¾	.01½	.01¾
***ARKANSAS—**						
33-36 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
30-32 Gas Oil	.01½	.01¾	.01½	.01¾	.01½	.01¾
16-22 Refinery Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
GULF COAST (South Texas)—						
Gas Oil	.02½	.02¾	.02½	.02¾	.02½	.02¾
Bunker C Fuel (cargo lots), per bbl.	.45	.50	.45	.50	.45	.50
Bunker C Fuel (small lots)	.55		.55		.55	
PENNSYLVANIA—						
30-34 Fuel Oil	.02¾	.03	.02¾	.03	.02¾	.03
36-40 Fuel Oil	.03		.03		.03	
CALIFORNIA—						
42-45 480 endpoint engine distillate	.05	.06	.05½	.06½	.05½	.06½
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil (f.o.b. tank cars), bbl.	.45	.75	.45	.75	.45	.75
27 plus Diesel, per bbl.	.75	.95	.70	.95	.70	.95
30-34 Gas Oil	.75	.95	.70	.95	.70	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.25	.27½	.25	.27½	.22½	.27½
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.35	.27½	.30
28-30 Fuel Oil, per bbl. (zero)	.42½	.47½	.42½	.47½	.42½	.47½
32-36 Gas Oil (industrial)	.01	.01¼	.01⅛	.01⅜	.01	.01⅛
32-36 Gas Oil (zero)	.01¼	.01⅜	.01⅜	.01½	.01¼	.01½
38-40 Straw Distillate	.01⅜	.01½	.01½	.01¾	.01⅜	.01⅝

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

	Sept. 15		Sept. 8		Sept. 1	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
100 vis., 3 color, 20-25 cold test	.03⅜	.04	.03⅜	.04	.03⅜	.04
150 vis., 3 color, 20-25 cold test	.06¼	.06¾	.06¼	.06¾	.96¼	.06¾
150 vis., 4 color, 20-25 cold test	.05⅝	.06	.05⅝	.06	.05⅝	.06
180 vis., 3 color, 23-28 cold test	.07⅜	.08¼	.07⅜	.08¼	.07⅜	.08¼
180 vis., 4 color, 23-28 cold test	.07¼	.07⅜	.07¼	.07⅜	.07¼	.07⅜
180 vis., 5 color, 23-28 cold test	.07	.07¼	.07	.07¼	.07	.07¼
200 vis., 3 color, 23-28 cold test	.08½	.09	.08½	.09	.08½	.09
200 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
200 vis., 5 color, 23-28 cold test	.07¾	.08	.07¾	.08	.07¾	.08
240 vis., 3 color, 25-30 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
240 vis., 4 color, 25-30 cold test	.09½	.10	.09½	.10	.09½	.10
240 vis., 5 color, 25-30 cold test	.09	.09½	.09	.09½	.09	.09½
280 vis., 3 color, 25-30 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
280 vis., 4 color, 25-30 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
280 vis., 5 color, 23-28 cold test	.10¼	.10½	.10¼	.10½	.10¼	.10½
Cylinder Stocks:						
600, steam refined, light green	.04½	.06	.04	.06	.04	.06
600, steam refined, dark green	.04	.05	.03½	.04½	.03½	.04½
190-200 vis., D color, Bright Stocks	.21	.22	.19		.19	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.19½	.20	.17		.17	
150-160 vis., D color, Bright Stocks 10-25 c.t.	.19½		.16½		.16½	
150-160 vis., D color, Bright Stocks 25-40 c.t.	.19		.16	.16½	.16	.16½
150-160 vis., E color, Bright Stocks	.18½	.19	.15½	.16	.15½	.16
Waxes:						
124-126 White Crude Scale Wax	.01⅝	.01⅞	.01⅝	.01⅞	.01⅝	.01⅞
All bright stock prices are for domestic movement.						
PENNSYLVANIA—						
34 Neutral	.05½		.05½		.05½	
34 Sundebloom	.05	.05½	.05	.05½	.05	.05½
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.17	.17½	.16½	.17	.15½	.16
180, 3 color	.18½	.19	.17½	.18	.17¾	.18
200, 3 color	.21	.21½	.20½	.21	.20	
220, 3 color	.22	.26½	.22	.26½	.22	.26½
600, steam refined	.14	.14½	.13½	.14½	.12	.13
650, steam refined	.17½	.18	.17	.18	.13½	.14½
600, Pennsylvania Flash	.18½	.19	.18½	.19	.18½	.19
600, E filtered	.18		.18		.18	
600, D filtered, Oil City	.22½	.23½	.22	.23½	.20	.21
Pennsylvania Bright Stocks below 35 c.t.	.29		.29		.28	
Pennsylvania Bright Stocks above 35 c.t.	.28½	.29	.28½	.29	.27½	.28
*122-124 White Crude Scale Wax	.019	.02	.019	.02	.019	.02
*124-126 White Crude Scale Wax	.019		.019		.019	
*At New York.						
GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
200 vis., 3 color, pale oil	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
300 vis., 3 color, pale oil	.08¾	.08⅞	.08¾	.08⅞	.08¾	.08⅞
500 vis., 3½ color, pale oil	.09⅞	.10⅛	.09⅞	.10⅛	.09⅞	.10⅛
750 vis., 3½ color, pale oil	.11⅜	.11⅝	.11⅜	.11⅝	.11⅜	.11⅝
1,200 vis., 3½ color, pale oil	.13⅞	.14⅛	.13⅞	.14⅛	.13⅞	.14⅛
2,000 vis., 4 color, pale oil	.14⅞	.15⅛	.14⅞	.15⅛	.14⅞	.15⅛
200 vis., 5-6 color, red oil	.06¾	.06⅞	.06¾	.06⅞	.06¾	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅛	.07⅞	.08⅛	.07⅞	.08⅛
500 vis., 5-6 color, red oil	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
CALIFORNIA—						
130 vis., 2½-3 color	.08	.08½	.08	.08½	.08	.08½
200 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
300 vis., 3-3½ color	.10	.11	.10	.11	.10	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
450 vis., 3½-4 color	.12	.12½	.12	.12½	.12	.12½
550 vis., 3½-4 color	.12½	.13¼	.12½	.13¼	.12½	.13¼
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
600 vis., 6½ plus color	.13	.13½	.13	.13½	.13	.13½
700 vis., 6½ plus color	.14	.15	.14	.15	.14	.15

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) EXPORT PRICES

	Sept. 15		Sept. 8		Sept. 1	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.06	.06¼	.06	.06½	.05½	.06
Kerosene, water white, 41-43	.05		.04¾		.04¾	
*Fuel Oil, Bunker "C," 41-43	.70		.70		.70	
†Fuel Oil, Diesel, 28-30, per bbl.	1.40		1.40		1.40	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.03½		.04		.04	
Refined Wax:						
120-122 a.m.p., per lb.	.03		.03		.03	
125-127 a.m.p., per lb.	.03⅛		.03⅛		.03⅛	
130-132 a.m.p., per lb.	.03⅝		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04⅛		.04⅛		.04⅛	
135-137 a.m.p., per lb.	.04⅝		.04⅝		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01⅝	
Amber	.02¾		.02¾		.02⅞	
Extra Amber	.03		.03		.02⅞	
Cream	.05¾		.05¾		.05⅝	
Lily White	.06⅝		.06⅝		.06½	
Snow White	.07¼		.07¼		.07	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) REFINERY PRICES

	Sept. 15		Sept. 8		Sept. 1	
600, steam refined cylinder stocks, in bbls.	.18½	.19	.18½	.19	.17½	.18
635, steam refined	.20½	.21	.20½	.21	.19	.20
650, steam refined	.21	.22	.21	.22	.20	.21
600, Pennsylvania Flash	.23	.24	.23	.24	.22	.23
630, Pennsylvania Flash	.28½	.29	.28½	.29	.27¾	.28
600, Warren E	.23	.24	.23	.24	.22	.23
600, Oil City E	.22	.23	.22	.23	.21	.22
Light 140-150 Bright Stocks	.31	.32	.31	.32	.30	.33
Dark 140-150 Bright Stocks	.30	.31	.30	.31	.29	.31

LOS ANGELES EXPORT PRICES

	Sept. 15		Sept. 8		Sept. 1	
Kerosene, water white	.04	.04¾	.04	.04¾	.04	.04¾
U. S. Motor Gasoline, 53-55, 437 e.p.	.04	.04½	.03¾	.04½	.03½	.04
58-60, 400 endpoint gasoline	.04½	.05	.04	.04¾	.03¾	.04¼

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas† ..... $ .62
Corsicana heavy (Aug. 22, 1931)† ..... .34
Other fields ..... See gravity table

†Posted by Panola Pipe Line Co. Aug. 17, 1931; by Magnolia Petroleum Co., Aug. 22, 1931; Tidal Refining Co., Sept. 2; Gulf Pipe Line Co., Sept. 3; Sinclair Refining Co., Sept. 3.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties. See gravity table

WEST TEXAS

Iatan and Westbrook. Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .35
Lea County, N. Mex.* ..... .35
Toborg, Pecos County, Aug. 25, 1931†.. .35

*The Texas Company, August 22, 1931. All other companies, August 22. †Shell Petroleum Corp.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective September 12, 1931)

Penna Grade Oil in National Transit Lines (Pennsylvania) $1.95
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.80
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) 1.70
Penna Grade Oil in Buckeye Pipe Line Lines (Sept. 4, 1931) 1.60
Corning Grade Oil in Buckeye Pipe Line Co.'s Line (Sept. 4, 1931) ..... .75
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

Tide Water Pipe Co.
(Effective September 12, 1931)

Bradford, Pa., crude $2.35
Allegany, N. Y., crude 2.35

Pure Oil Co.
(Effective September 12, 1931)

Cabin Creek, W. Va. $1.70
Kelly's Creek, W. Va. 1.70
Bradford Hollow, W. Va 1.70

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers ..... See gravity table
Jennings, La. (Aug. 22, 1931)* ..... $ .50
Lockport, La. (Aug. 27, 1931)† ..... See Gulf Coast gravity table
Refugio light ..... See gravity table
Refugio heavy (Aug. 22, 1931)‡ ..... .60
Markham (Aug. 22, 1931)‖ ..... .52
..... See Gulf Coast gravity table
High Island (Aug. 22, 1931)† ..... .50

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. §The Texas Company. Other companies July 24. ‖Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) See note below
Urbana, Ark. ..... See note below
Bellevue, La. (June 3, 1931) ..... $ .25
Urania, La. (Aug. 24, 1931) ..... .40
Calion, Ark. (Aug. 22, 1931) ..... .52
East El Dorado, Ark. (Aug. 22, 1931).. .45
Stephens, Ark., below 29° (August 24, 1931) ..... .41
Stephens, Ark., 29° and above (August 24, 1931) ..... .44
Other fields ..... (See gravity table)

Note—Smackover, all grades, The Texas Company, August 22, 1931, 52 cents; Gulf Refining Co., August 22, 45 cents; Magnolia Petroleum Co. and Standard Oil of Louisiana, August 24, 45 cents. Urbana posting discontinued by Standard Oil Co. of Louisiana on August 24, 1931. Bellevue posted by Magnolia Petroleum Co.; Urania by Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.;

(Continued on Page 94)

CRUDE OIL GRAVITY TABLE

	Okla., Kans., East Central and North Central Tex. (1)	Oklahoma, Kansas. (2)	North Louisana and Arkansas (3)	Gray County, Texas (4)	Hutchinson, Carson and Moore Counties, Texas (5)	Gray County, Texas (6)	Carson and Hutchinson Counties, Tex. (7)	Salt Creek, Wyo. (8)	Gulf Coast (9)
Below 25 degrees	...	...	...	...	...	...	...	...	.55
25-25.9 degrees	...	...	...	...	...	...	...	...	.56
26-26.9 degrees	...	...	...	...	...	...	...	...	.57
27-27.9 degrees	...	...	...	...	...	...	...	...	.58
28-28.9 degrees	...	...	...	...	...	...	...	...	.59
Below 29 degrees	.46	...	.46	...	...	...	...	.46	...
29-29.9 degrees	.48	.78	.48	...	...	...	...	.48	.60
30-30.9 degrees	.50	.80	.50	...	...	...	...	.50	.61
31-31.9 degrees	.52	.82	.52	...	...	...	...	.52	.62
32-32.9 degrees	.54	.84	.54	...	...	...	...	.54	.63
33-33.9 degrees	.56	.86	.56	...	...	...	...	.56	.64
34-34.9 degrees	.58	.88	.58	.60	.48	.46	.41	.58	.65
35-35.9	.60	.90	.60	.62	.50	.48	.43	.60	.66
36-36.9 degrees	.62	.92	.62	.64	.52	.50	.45	.62	.67
37-37.9 degrees	.64	.94	.64	.66	.54	.54	.47	.64	.68
38-38.9 degrees	.66	.96	.66	.68	.56	.54	.49	.64	.69
39-39.9 degrees	.68	.98	.68	.70	.58	.56	.51	.64	.70
40 degrees and above	.70	1.00	.70	.72	.60	.58	.53	.64	.71

Note—Magnolia Petroleum Co. does not pay on a gravity basis. The Magnolia company posted the following notices on August 22 and August 24 as indicated in the notices:

"Effective August 22, 1931, and until further notice our prices on crude oil will be as follows per barrel at the wells: Central Texas, which includes only Mexia, Wortham, Corsicana light, Panola County, and Lytton Springs, 64 cents; Panhandle district of Texas, Gray County, 58 cents; Carson and Hutchinson Counties, 51 cents; West Texas, being Crane, Upton, Howard, Glasscock and Mitchell Counties, 35 cents; Mirando, 60 cents; Darst Creek, 52 cents; Luling, 34 cents; Corsicana heavy, 34 cents. Oklahoma, including Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole, 68 cents; Cement, Duncan, and Walters, 60 cents; Healdton, 37 cents; Hewitt and Graham, 52 cents. North and Central Texas, including only Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 68 cents; East Texas, 68 cents.

"Effective August 24, 1931, and until further notice our prices on crude oil in the states of Louisiana and Arkansas will be as follows per barrel at the wells: Louisiana, Bull Bayou, 68 cents; Haynesville, 50 cents; Pine Island, 58 cents; Cotton Valley, 46 cents. Arkansas, El Dorado and Rainbow, 48 cents; El Dorado East Field and Smackover district, 45 cents."

Colmun 1—The Texas Company (excepting Kansas), August 22; Gypsy Oil Co., Gulf Pipe Line, Carter Oil Co., Humble Oil & Refining Co., Stanolind Crude Oil Purchasing Co., Sinclair Refining Co., Continental Oil Co., Skelly Oil Co. (Kansas), Empire Pipe Line Co., Wilcox Oil & Gas Co., Tidal Refining Co., Pure Oil Co., Vickers Petroleum Co., Derby Oil Co., all on August 22.

Column 2—Phillips Petroleum Co., August 24.

Column 3—The Texas Company, August 22; Gulf Refining Co., August 22; Standard Oil Co. of Louisiana, August 24; Louisiana Oil Refining Co., August 24.

Column 4—Phillips Petroleum Co., August 24; Wilcox Oil & Gas Co., August 24.

Column 5—Phillips Petroleum Co., August 24.

Column 6—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22.

Column 7—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22.

Column 8—The Mid West Refining Co., August 22.

Column 9—The Texas Company, August 22; Humble Oil & Refining Co. and Gulf Pipe Line Co. on August 22 but their price schedule stops at 35 and above at 66 cents. Sun Co. and Sinclair Refining Co. met Humble-Gulf prices effective August 22, but Sun Co. posted a price of 55 cents for Grade A oil, it being the only company that maintains A and B grade classifications. The Vacuum Oil Co. applied the schedule to Lockport on August 27.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.73
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).

Montebello—55 cents for all grades (14° to 25.9°).

Whittier and LaHabra—65 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices, effective June 20, are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above, 66 cents.

Potrero, 24 gravity, 69 cents with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

(Continued on Page 99)

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Sept. 15

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Chicago	14.0	14.0	3.0	9.0
Decatur, Ill.	14.4	14.4	3.0	9.0
E. St. Louis	13.7	13.7	3.0	8.2
Joliet	14.4	14.4	3.0	9.0
Peoria	14.4	14.4	3.0	9.0
Quincy	14.2	14.2	3.0	8.8
Davenport, Ia.	14.5	14.5	3.0	9.3
Des Moines	14.5	14.5	3.0	9.3
Keokuk	14.5	14.5	3.0	9.3
Sioux City	14.1	14.1	3.0	8.9
Duluth, Minn.	15.5	15.5	3.0	9.9
Mankato	15.1	15.1	3.0	9.7
Minneapolis	15.2	15.2	3.0	9.9
La Crosse, Wis.	16.2	16.2	4.0	10.0
Milwaukee	15.1	15.1	4.0	8.9
Madison	15.3	15.3	4.0	9.1
Detroit, Mich.	14.8	14.8	3.0	10.7
Grand Rapids	14.7	14.7	3.0	10.6
Saginaw	14.9	14.9	3.0	10.8
Evansville, Ind.	15.1	15.1	4.0	9.9
Indianapolis	15.3	15.3	4.0	10.1
South Bend	15.4	15.4	4.0	10.2
Fargo, N. D.	16.9	16.9	3.0	11.9
Huron, S. D.	16.3	16.3	4.0	10.7
Sioux Falls	15.8	15.8	4.0	10.4
K. C., Mo.	13.9	13.9	3.0	7.6
Springfield*	13.9	13.9	3.0	8.5
St. Louis*	13.9	13.9	2.5	8.3
St. Joseph	13.5	13.5	3.0	7.5
Wichita, Kans.	12.8	12.8	3.0	7.8
Bartlesville, Ok.	13.0	16.0	5.0	7.5

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 2 cents or more below the price on the regular grade.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Dallas, Tex.	13.0	14.0	4.0	8.0
Fort Worth	13.0	14.0	4.0	8.0
Houston	13.0	14.0	4.0	11.0
San Antonio	13.0	14.0	4.0	10.0
El Paso	14.0	16.0	4.0	13.0
Texarkana	13.0	14.0	4.0	11.0
Muskogee, Ok.	13.0	14.0	5.0	8.0
Okla. City	13.0	16.0	5.0	7.0
Tulsa	13.0	15.0	5.0	8.0
Ft. Smith, Ark.	16.5	17.5	5.0	11.0
Little Rock	17.5	18.5	6.0	11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Omaha	15.25	16.25	4.0	9.25
McCook	16.0	17.75	4.0	10.75
Norfolk	15.75	16.75	4.0	9.75
N. Platte	16 75	17.75	4.0	10.50
Scottsbluff	16.0	16.0	4.0	10.25

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal station price; Red Crown, 2½ cents off normal service station price; Nabraska Blue (third grade) 1 cent off normal service station price.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Denver, Colo.	16.0	19.0	4.0	13.5
Pueblo	16.0	19.0	4.0	13.0
Grand Jctn.	18.0	21.0	4.0	14.5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	16.5	19.5	4.0	11.5
Butte, Mont.	17.0	20.0	5.0	16.0
Billings	20.0	23.0	5.0	14.5
Great Falls	21.0	23.0	5.0	18.0
Helena	21.0	24.0	5.0	18.0
Salt Lake, Utah	18.5	21.5	4.0	16.0
Albu'que, N.M.*	18.0	21.0	6.0	14.0
Boise, Idaho	21.5	24.5	5.0	18.0
Twin Falls	20.5	23.5	5.0	18.0

*One-cent excise city tax.

PACIFIC COAST TERRITORY

	Gasoline			Kero.
	Wh'la'e price	Retail* price	Incl'ds tax	tank wagon
Fresno	15.5	16.5	3.0	17.0
San Francisco	13.5	16.5	3.0	15.5
Los Angeles	13.0	16.0	3.0	15.5
Reno, Nev.	23.5	20.5	4.0	19.0
Portland, Ore.	21.0	18.0	4.0	16.5
Seattle, Wash.	22.0	19.0	5.0	16.5
Tacoma	22.0	19.0	5.0	16.5
Spokane	25.5	22.5	5.0	20.5
Phoenix, Ariz.	15.5	17.5	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Pittsburgh, Pa.	*10 0	*11.0	...	11 0
Philadelphia	*10.0	*11.0	...	11.0
Scranton	*10.0	*11.0	...	11.0
Allentown	*10 0	*11.0	...	11.0
Altoona	*10.0	*11.0	...	11.0
Erie	*10.0	*11.0	...	11.0
Dover, Del.	13.0	14 0	3.0	11 0
Wilmington	13.0	14 0	3 0	11.0
Springf'd, Mass.	14.5	15 5	3 0	10 0
Worcester	14 3	15 3	3 0	10.0
Boston	13.5	14.5	3.0	10 0
Providence, R.I.	12 7	13.7	3 0	10 0
Hartford, Conn.	14 5	15.5	3 0	10.0
New Haven	14 6	15 6	3 0	10.0

*Does not include tax of 2 cents in Pennsylvania. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The above prices are subject to discounts to dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
N. Orleans La.	15.5	15.5	6.0	12.0
Baton Rouge	15.0	16.0	5.0	12.0
Alexandria†	17.0	18.0	6.0	12.0
Lafayette*	17 0	18 0	6 0	12 0
Lake Charles*	17.0	18.0	6.0	12.0
Shreveport	16.5	17.5	5.0	12.0
Knoxville, Tenn.	19 5	20.5	6.0	12.5
Memphis	17.5	18.5	6.0	10.0
Chattanooga	19.0	20.0	6.0	12.0
Nashville	18.5	19.5	6.0	12.5
Bris ol	19.5	20.5	6.0	14.0
Lt. Rock, Ark.	17.5	18.5	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atl'tic City, N.J.	14.7	15.7	3.0	11.5
Newark	13.7	14.7	3.0	10.5
Annapolis, Md.	15.2	16.2	4.0	11 0
Baltimore	14.4	15.4	4 0	9 5
Cumberland	16.2	17 2	4.0	10.0
Wash'ton, D. C.	12.9	13.9	2.0	10.7
Danville, Va.	17.0	18.0	5.0	11.8
Norfolk	15.5	16.5	5.0	10.0
Petersburg	16.5	17.5	5.0	11.3
Richmond	15.9	16.9	5.0	10.7
Roanoke	17.2	18.2	5.0	12.0
Charles'n, W.Va.	15.7	16.7	4.0	11.5
Keyser	16.3	17.3	4.0	12.1
Parkersburg	14.4	15.4	4.0	10.2
Wheeling	15.6	16.6	4.0	11.4
Charlotte, N. C.	18.5	19.6	6.5	12.3
Hickory	18.5	19.5	6 0	13 6
Mount Airy	18.7	19.7	6.0	13.5
Raleigh	18.4	19.4	6.0	12.2
Salisbury	18.7	19.7	6.0	12.5
Charleston, S.C.	16.5	17.5	6.0	10.3
Columbia	18.4	19.4	6.0	12.2
Spartanburg	18.7	19.7	6.0	12.5

Two cents per gallon discount off retail tank wagon price of gasoline to dealers except Washington, D. C., and states of Maryland and New Jersey, where discount is 3 cents.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16.0	2 0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14 0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Ohio points	15.0	16.0	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13.0 cents.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atlanta, Ga.	16 0	16.0	6 0	12 5
Augusta	19 0	20.0	6 0	14 0
Macon	16.0	16.0	6.0	12.0
Savannah	18.0	18.0	6.0	13.0
Birm'ham, Ala.	15.0	15.0	6.0	13.0
Mobile	18.5	18.5	8 0	10 0
Montgomery	17.0	17.0	5.0	13.5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	16.0	16 0	5 0	11 5
Natchez	18.0	20.0	5.0	13.5
Gulfport	16 0	16.0	5.0	13.5
Vicksburg	14.0	14.0	5.0	11.5
Jack'ville, Fla.	15 0	15 0	7 0	12 0
Miami	19.0	21.0	7.0	13.0
Pensacola	19 0	20 0	7 0	13.0
Tampa	18 0	19.0	7 0	12.0
Lexington, Ky.	17.0	18.0	5.0	12.0
Covington	16.0	17.0	5.0	11.0
Louisville	16.0	17.0	5.0	10.0
Ashland	17.0	19.0	5.0	13.0
Paducah	16.0	17.0	5.0	11.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	18.0	19.0	5.0	15.0

A third grade "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6 0
V.M.P. naphtha	12 7	7 5
Cleaners' naphtha	14.2	9.0
Stanisol	14 2	9 0

Tank wagon prices f.o.b. Chicago and Whiting, effective July 3.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial) 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Magnolia Petroleum Co. advanced the gasoline tank wagon and station prices in Muskogee to 12 and 14 cents August 28. In Oklahoma City the tank wagon was reduced to 12 cents August 25. On September 8 the gasoline tank wagon and sta-

(Continued on Page 104)

CRUDE OIL PRICE CHANGES

Effective September 12 the Joseph Seep Purchasing Agency increased the price of Pennsylvania grade crude oils 15 cents per barrel for each grade. The Tide Wa-

(Continued on Page 104)

CRUDE OIL PRICES

(Continued from Page 93)

Luling (Aug. 22, 1931)†	.34
Mirando (Aug. 22, 1931)*	.60
Pettus (Aug. 22, 1931)*	.70
Salt Flat (Aug. 22, 1931)*	.52
Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.	

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Aug. 22, 1931)*	$ .52
Thrall‖	
Lytton Springs (Lockhart). See gravity table	
Dobrowolski‖	
Same as Mid-Continent gravity scale up to and including 38-38.9°	
Somerset¶	
Same as Mid-Continent gravity scale up to and including 38-38.9°	

*Texas, Humble and Gulf all posted on August 22. †Magnolia Petroleum Co. ‖Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles, light (Aug. 24, 1931)	$ .75
Iles, heavy (Aug. 24, 1931)	.53
Fort Collins (Aug. 24, 1931)	.61
Florence (Aug. 24, 1931)	.50
Wellington (Aug. 24, 1931)	.51
Dutton Creek (Aug. 24, 1931)	.60
Rock Creek, Wyo. (Aug. 24, 1931)	.70
Frannie, light (Aug. 24, 1931)	.53
Frannie, heavy (Aug. 24, 1931)	.43
Salt Creek. Mid-Continent gravity table	
Big Muddy (Aug. 24, 1931)	.68
Grass Creek (Aug. 24, 1931)	.90
Elk Basin (Aug. 24, 1931)	.90
Lance Creek (Aug. 24, 1931)	1.05
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.95
Lost Soldier (Aug. 25, 1931)	.54
Hamilton Dome (Mar. 14, 1927)	.85
Greybull (Aug. 24, 1931)	.90
Torchlight (Aug. 24, 1931)	.90
Cat Creek (Aug. 24, 1931)	.90
Pondera (Aug. 24, 1931)	.80
Sunburst, Mont. (Aug. 24, 1931)	.90
Hogback, N. Mex. (Aug. 24, 1931)	.80
Lea County, N. Mex. (Aug. 24, 1931)	.35
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (Aug. 24, 1931)	1.00
Maljamar (Aug. 22, 1931)	1.00
Artesia-Jackson (Aug. 22, 1931)	.35

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective August 24, 1931)

Lima	$ .90
Wooster	1.00
Illinois	.80
Indiana	.50
Princeton	.80
Plymouth	Shut in
Western Kentucky	.75
Midland, Mich.*	.73
Dundee, Mich.†	
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich.†	
.... Same as Mid-Continent gravity scale	
Somerset, Ky. (Aug. 22, 1931)	.80
Hart County, Ky. (Aug. 24, 1931)¶	.75

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‖Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining, Ashland, Ky., and delivered through Cumberland Pipe Line.

MEXICO

Panuco*	$ .44

*F.o.b. ship, based on August transactions and exclusive of taxes and bar dues.

CANADA

Ontario (Aug. 24, 1931):	
Petrolia*	$1.80
Oil Springs*	1.87
Alberta (Aug. 24, 1931):	
Turner Valley†:	
Crude oil 45-49.9	2.05
Crude oil 50 and above	2.65
Crude naphtha	3.12
Discolored naphtha	2.88

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Royal Oil & Refining Co.

Of Interest to Sales Departments

Much Information Needed to Market Exported Products

NEW YORK, Sept. 12.—Balanced products and detailed knowledge of markets to be serviced are the first requisites for the proper handling of export sales, says R. E. Ryerson, export manager for the Tide Water Oil Co.

Writing in the "Tide Water World," new company publication, Mr. Ryerson sums up some of the trials and tribulations of export marketing as follows:

"Imperial gallons in England, liters in Chile * * * pounds sterling, pesos, milreis, marks, francs * * * packages branded in Chinese, Spanish, Portuguese * * * cased gasoline containing 37½ liters, 8 imperial gallons, 10 U. S. gallons * * * winter in Europe, Asia and North America * * * summer in South America, South Africa and Australasia * * * shipments made in summer for winter use, shipments made in winter for summer consumption * * * Engler viscosity in Germany, Redwood viscosity in England, Saybolt viscosity in Africa * * * 400 endpoint gasoline in England, 375 endpoint gasoline in France, U. S. Motor gasoline for Germany * * * heavy body appearing oils for the West Indies, transparent oils for Canada * * * these are only a few of the conditions to be confronted in selling petroleum products to export markets.

"Foreign marketing and its ever-increasing demand for detailed knowledge require that the business be conducted only by men thoroughly trained for their jobs with a background of years of experience in foreign fields. Practical contact with every peculiarity of these markets is imperative. Furthermore, a most comprehensive knowledge which can only be acquired by actual practice is vital on the part of the departments in the refineries having charge of the packing and shipping of the many different products to all points in the world.

"The proper execution of export orders is not always a simple process. Most orders which are received are merely request shipment of certain products. It is the job of our departments to select the steamship line which will transport the material not only at the lowest rate, but which will have the most favorable facilities for discharging the cargo at destination, hence guaranteeing the customer a satisfactory out-turn.

"Once the necessary freight bookings has been made, concise instructions are issued to the respective departments in the refinery for the preparation of the order. A certain type of container may be required for this particular market and the branding of the cases or drums will undoubtedly be entirely different from that on shipments to other countries. In filling the containers the refinery may be required to set the automatic fillers so that an allowance is made for severe changes in temperature. It is very difficult to visualize the great quantity of different dies, shooks and special containers which the refinery must have available at all times; nor is it easy to understand the actual amount of work which must take place in arranging for the preparation of countless grades of oil having special specifications required by the ultimate consumer in the foreign market. Nevertheless, all this must be prepared and developed by the refinery and the export department.

"It is quite obvious that it would be utterly impossible to ship different grades of products to each country, and the greatest efforts of the departments mentioned heretofore were not able to manufacture balanced products which will meet practically all requirements and con-

(Continued on Page 104)

SURVEY INDICATES RAILROADS USE MORE MOTOR FUEL THAN AIRPLANES

By H. A. Breakey and E. B. Swanson
U. S. Bureau of Mines*

The trend of gasoline consumption has undergone an acute change within the past seven years. The average consumption of gasoline per car up to 1924 was about 450 gallons per year, but since that time it has been increasing steadily. This is indicated by the following table:

GALLONS OF GASOLINE CONSUMED PER MOTOR CAR PER YEAR

1923	436
1924	441
1925	471
1926	500
1927	539
1928	570
1929	596
1930	626

Some attribute this gain in consumption solely to an increase in the number of closed cars and to improved highways. While these things are undoubtedly basic, a great deal more must be known about the reason for this change in trend if we are going to anticipate the future of our gasoline demand. Accordingly, the Bureau of Mines has recently started a study, which it expects to complete in about two years, for the purpose of obtaining accurate information regarding the various factors and relationships in gasoline consumption. As a part of this study, and also to obtain information for specific inquiries which it has received, the Bureau of Mines recently wrote to all the states that provide for exemptions or refunds of gasoline taxes.

A great many of the state officials already have comprehensive systems for analyzing their tax refunds, and others are making studies in anticipation of changing their methods of handling the refunds so that they can be analyzed as presented. One suggestion in this connection is that the distributors or manufacturers present their claims already segregated as to the various exempt uses for gasoline. This would have the advantages that it would give the distributors or manufacturers an analysis of their sales, which would be of value to them and which they are now probably trying to get by some other method with less success, and it would facilitate the checking of the refunds in the tax refund office if the claims were classified according to the exemption provided for by the law.

Thirty-four of the forty-eight states and the District of Columbia have general exemption or refund privileges in connection with their gasoline tax. In these states the gasoline that is exempt ranges from 3 per cent of the gasoline sold in Connecticut to 42 per cent of that sold in North Dakota. The situation in the District of Columbia is exceptional in that the total exemption amounts to only 0.7 per cent. The average exemption of all the states, including the District of Columbia, amounted to 7.8 per cent in 1930.

In general the percentage of tax refunded is lower in the eastern part of the country, and increases throughout the agricultural section of the Middle West, where it is 16 per cent for Kansas, 24 per cent for Montana, 32 per cent for South Dakota and 42 per cent for North Dakota. Table 1 shows the total gasoline consumption, the refunds, and the percentage of tax refunded for the states having general exemption privileges.

Eleven states indicated the amount of their gasoline consumption for agricultural purposes. The gasoline consumed for these purposes amounted to 3.28 per cent of the total gasoline consumed by these states. If this percentage were applied to the entire United States, it would indicate that at the present time 544,923,500 gallons, or 12,974,000 bbls., is being consumed annually for agricultural purposes. Although neither the southeastern states nor the Pacific Coast States are included among the 11 states which reported in detail, it is felt that a fairly representative cross section was obtained and that the figure of close to 13,000,000 bbls. for the annual gasoline consumption for agricultural purposes is fairly accurate.

The greater part of the refunds for the states west of the Mississippi are for agricultural purposes, although the total quantity of gasoline used in agriculture in these states is about the same as for Illinois and New York, in which State more than one-half of the refunds are for purposes other than agriculture.

Table 2 shows the gallons of gasoline used for the various purposes and the percentage of the total gallons. In compiling this table the percentages were based on the total gasoline consumption for the states that showed consumption figures for the respective purposes. For instance, only five states showed the amount of gasoline used for cleaning purposes, so the percentage was based on the total gasoline consumed by those states.

The gasoline consumed in construction work, which amounted to 1.06 per cent of the total consumed in seven states in 1930, has increased rapidly in relative importance. In 1930 this class represented 40 per cent of the gasoline tax refunded in the District of Columbia as compared with only 11 per cent in 1925. The 1930 percentage excludes 12 per cent for street and highway construction, which in 1925 was too small to separate from the general construction figure.

Highway construction accounted for 1.03 per cent of the total gasoline consumption of four states in 1930. Unfortunately, these states are not all in-

(Continued on Page 103)

*Presented at North American Tax Conference at Denver, September 9-11.

SHARP INCREASES IN CHILEAN IMPORT TAX

NEW YORK, Sept. 12.—Sharp increases in import duties on petroleum products are provided for in a measure recently introduced in the Chilean congress. The principal products affected, and a comparison between the present and proposed new duties, follow:

	Pesos	
	Proposed duty	Present duty
Benzine, petroleum ethers, and motor gasoline, in tankers, per hectoliter ..	*40.00	3.00
In containers, per gross metric quintal	†50.00	42.00
Diesel oil, Caldera and all ports north, per gross ton	3.00	3.00
Huasco and all ports south, per gross ton	‡40.00	6.00
Fuel oil, Caldera and all ports north, per gross ton	6.00	6.00
Huasco and all ports south, per gross ton	‡40.00	6.00
Furnace oil, Caldera and all ports north, per gross ton	12.00	12.00
Huasco and all ports south, per gross ton	‡40.00	12.00
Kerosene, in tankers, per hectoliter	30.00	15.00
In containers, per gross metric quintal	40.00	25.00
Lubricating greases, not specified, per gross kilo .	1.00	0.80
Machine oil, plain or compounded, per gross kilo ..	0.40	0.25

*Duty of 20 pesos was effective September 1. †Duty of 30 pesos was effective September 1. ‡An additional 20 pesos per ton each semester during 1932 except for such products imported by petroleum and copper companies for productive and metallurgical purposes.

NEBRASKA FARMERS FAIL TO EVADE PAYING TAX

The efforts of 40 Cheyenne County, Nebraska, farmers to use the U. S. Supreme Court decision on original packages as applied to "whisky importations" many years ago, failed to block the collection of gasoline tax on the test case made by the farmers when they imported a tank load of gasoline for their own use, and went into court to seek an injunction against paying the 4-cent importation tax, according to Nioma, the house organ of the Nebraska oil jobbers.

In order to come under the original package decision, it would be necessary for these Gurley farmers to import gasoline in gallon jugs or sealed containers, and these jugs delivered at their farms unopened.

Judge Lincoln Frost of the Lancaster District Court sustained the state's demurrer to a court action brought by the farmers. Judge Frost states: "This is a very close question in view of several federal court decisions, but it seems to me that gasoline ceases to be a part of interstate commerce when it is unloaded from the railroad car into tanks which are leased by the purchaser. That is what happened in this instance. If the gasoline does cease to become a part of interstate commerce by virtue of that unloading operation it is clearly subject to taxation under state statutes."

SOVIET PLAN TO SHIP OIL UP VOLGA FAILS

NEW YORK, Sept. 12.—The Soviet oil trust's plans for shipment of petroleum products up the Volga for supplying industrial enterprises, collective farms, etc., with motor fuel and lubricants, have scored virtually a complete breakdown, according to "Izvestya," of Moscow.

A total of 7,800,000 tons of oil products was scheduled for conveyance up the Volga during the open season. During the first half of the navigation season, shipments were very materially behind this schedule, average shipments during August amounting to 17,000 tons a day, against scheduled shipments of 39,300 tons daily.

The campaign for the launching of tankers and tugs for towing oil barges, "Izvestya" adds, "remain systematically unfulfilled."

Present indications are that close to 2,500,000 tons of refined products originally scheduled for water shipment into interior Russia cannot be delivered this season, owing to the breakdown in transportation. With storage lacking for these products, it is believed probable that this huge quantity of refined products will be dumped by the Soviet into export markets.

MARATHON TRADE-MARK UPHELD

The Ohio Oil Co. has been successful in the defense of the decision of the examiner of trade-mark interferences against the Harlan-Wallins Coal Co. as a result of which the latter company is restrained from registering the slogan "Marathon Coal Best in the Long Run." The decision of the patent appellate court in summary follows:

"It is held that the goods of the applicant and those of the opposer possess the same descriptive properties and belong to the same class as these terms are defined in the adjudicated cases made of record in this proceeding. These cases are deemed to fully establish that the office classification is not controlling upon the question of what goods possess and what do not possess the same descriptive properties."

Standard Group's Dividends Show Drop

Third Quarter Payments This Year About $17,000,000 Below Same Period in 1930. General Market Better, but Selective

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Sept. 14.—Cash dividend payments of the Standard Oil group for the quarter ended September 30 will aggregate $51,263,888, according to a compilation by Carl H. Pforzheimer & Co. This compares with $57,543,667 in the second quarter this year and $68,271,015 in the third quarter of 1930.

Prairie Pipe Line Co. is not included in the total for the September quarter this year, as it has not yet taken action on the dividend for the current quarter since the meeting originally scheduled for August 15 was postponed for lack of a quorum. The company paid cash dividends of $3,037,500 or 75 cents per share on 4,050,000 shares of $25 par value capital stock in the second quarter this year.

A reduction in the dividend rate by Standard Oil Co. of Indiana is reflected in the decrease in dividends for the current quarter. In the second quarter this company paid 50 cents a share as compared with the present rate of 25 cents.

Dividend payments by the Standard Oil group of companies in the third quarter in recent years follows:

1931	$51,263,888
1930	68,271,015
1929	65,426,981
1928	50,068,102
1927	47,728,440

The dividend of 40 cents a share declared by Socony-Vacuum Corp., successor to Standard Oil Co. of New York, is estimated to have required a total disbursement of $12,769,226, giving effect to a full exchange of its stock for Vacuum Oil Co. In the second quarter this year Standard of New York and Vacuum Oil combined are estimated to have paid $9,953,040, so that the dividend on Socony-Vacuum represents a substantial increase.

Week's Market

With conditions in the oil industry showing continued improvement, and earnings of large oil units consequently on the mend, petroleum securities have again furnished most of the strength in stock trading during the past week.

While the oils have developed a fairly large following, it is evident that much of this support is still professional, and has not been sufficiently strong to hold the market in the face of selling drives on other groups, notably the rails, and the oils have sagged sympathetically in some instances.

Although the oils as a group are doing better, the present market is rather selective, and certain of the oils have witnessed a considerable movement. Continental Oil of Delaware has been largely traded during the past fortnight, with some gains shown. Standard of New Jersey and Standard of California have been well bought on reports of continued progress in merger negotiations. Among the independents on the "big board," The Texas Corporation and Skelly Oil have both shown fairly heavy turnover.

Trading in pipe line securities on the Curb has slackened, although Northern Pipe Line is showing strength and is currently selling near the high for the year.

Richfield Claims

Judge W. P. James of the U. S. District Court in Los Angeles has appointed William A. Bowen as special master to hear claims of creditors of Richfield Oil Co. of California, now in receivership. It is estimated that more than 5,500 claims will have to be considered.

Texon Oil & Land

Texon Oil & Land Co., subsidiary of Continental Oil Co., has declared the regular quarterly dividend of 25 cents, payable September 30 to stock of record September 15.

Group No. 1 Oil Corp., controlled by Texon, has declared the regular quarterly dividend of $100 per share, payable September 30 to stock of record September 15. In each of the two preceding quarters, Group No. 1 has also paid an extra dividend of $100 per share.

Standard of Ohio

Standard Oil Co. of Ohio has declared the regular quarterly dividend of 62½ cents per share, payable October 1 to stock of record September 15.

Gulf Oil

The Gulf Oil Corp. declared the regular quarterly dividend of 37½ cents, payable October 1 to stock of record September 20.

Tide Water Associated

Report of Tide Water Associated Oil Co. and subsidiaries for six months ended June 30, 1931, shows net loss of $1,077,464 after inventory adjustments, interest, depreciation, depletion, minority interests and other charges. This compares with net income of $5,595,635, or 58 cents a share on 5,843,937 no-par common shares in first half of 1930, after dividend requirements on 6 per cent preferred stock.

Net loss for quarter ended June 30 amounted to $885,889, after taxes and charges, comparing with net loss of $191,575 in preceding quarter, and net profit of $3,430,268, equal to 39 cents a share on common in June quarter of previous year.

Tide Water Oil Co. and subsidiaries report for six months ended June 30, 1931, net loss of $2,008,571 after depreciation, depletion, taxes, etc. This compares with net profit in first half of 1930 of $2,838,852, equal after dividend requirements on 5 per cent preferred stock, to $1.07 a share on 2,191,821 no-par shares of common stock.

Net loss for quarter ended June 30, 1931, amounted to $863,227 after depreciation, depletion, taxes, etc., comparing with net loss of $1,145,344 in preceding quarter and net profit of $2,187,687 equal to 89 cents a share on common in June quarter of previous year.

Associated Oil Co. and subsidiaries report for six months ended June 30, 1931, net profit of $1,111,308 after interest, depreciation, depletion, Federal taxes, cancelled leases, abandoned wells and other charges, equal to 48 cents a share (par $25) on 2,290,412 shares of stock. This compares with $3,264,855, or $1.12 a share, in first half of 1930.

For quarter ended June 30, 1931, net profit was $42,064 after taxes and charges, equal to 2 cents a share, comparing with $1,069,244, or 46 cents a share in preceding quarter and $1,524,835, or 66 cents a share, in June quarter of previous year.

Shamrock Oil & Gas

J. B. Orr, treasurer of the Shamrock Oil & Gas Co., announced that approval given by nearly all of the bond holders of the company to a refinancing plan and the recent advance in price of East Texas oil had saved the company from liquidation and loss of a portion of its gas properties. He said the rise in price of East Texas crude to 68 cents a barrel had made refinancing unnecessary, but the plan was carried out as arranged. All indebtedness has been paid.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Jan. 21	27.55	May 20	19.25
Jan. 28	27.26	May 27	18.35
Feb. 4	27.26	June 3	18.00
Feb. 11	27.76	June 10	19.62
Feb. 18	28.53	June 17	19.23
Feb. 25	29.32	June 24	22.33
Mar. 7	27.67	July 1	22.32
Mar. 11	26.53	July 8	21.24
Mar. 18	26.78	July 15	19.79
Mar. 25	26.85	July 22	21.33
Apr. 1	24.80	July 29	20.68
Apr. 8	25.52	Aug. 5	20.80
Apr. 15	24.72	Aug. 12	21.00
Apr. 22	22.73	Aug. 19	24.25
Apr. 29	20.54	Aug. 26	23.26
May 6	20.74	Sept. 2	22.30
May 13	20.38	Sept. 9	20.28

HYDROGENATION OF COAL

WASHINGTON, D. C., Sept. 15.—That large scale production of oil from coal in Great Britain is now feasible is indicated by the fact that Imperial Chemical Industries, Ltd., foremost leader in the development, has ready a plant capable of hydrogenating 15 tons of bituminous coal daily, according to a statement by the company's chairman explaining the present stage of progress in regard to this process, the Commerce Department is informed by Trade Commissioner Roger R. Townsend at London.

The British company claims that in the new plant's process about 60 per cent by weight of the coal treated is recovered as gasoline, and that the product has been used successfully by motor vehicles of all descriptions. A slight rise in the price of gasoline would make the industry self-supporting, informed British observers believe.

SIX MEN KILLED

NEW YORK, Sept. 14.—Six men were killed and 30 injured, 11 critically, in an explosion at the Atlantic Refining Co. Point Breeze, Philadelphia, refinery. The explosion occurred when a portion of the pipes in the new gasoline stabilization plant which was being operated for the first time gave way, spraying blazing naphtha over the still's crew.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Sept. 5)

1931 High	1931 Low	Week ended Sept. 5 Sales	Week ended Sept. 5 High	Week ended Sept. 5 Low	Close Sept. 9	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1	⅛	100	¼	¼	..	Atlantic Lobos		499,448	N.P.	....	5-28-30	..	..	..	..	1	⅛
16	6¼	200	12½	12½	..	Borne Scrymser		$1,000,000	$25	....	10-15-30	56½	44½	46½	25	25	11¼
56	40	100	52	52	..	Buckeye Pipe Line		$10,000,000	$50	$1Q	9-15-31	76	53	74½	55	69	39⅞
129½	101	100	110	110	..	Chesebrough Mfg.		$3,000,000	$25	$1Q‡	6-30-31	161	117	210	130	184⅞	104¼
3⅞	2	3,800	2⅝	2⅜	2¼	Creole Petroleum	(sh)	5,977,872	N.P.	....	.....	17½	9½	11¾	5⅝	7⅝	3
39	20⅝	700	29	27¼	27¼	Cumberland Pipe Line		$1,500,000	$50	50cQ	6-15-31	114	67	75⅜	40	65¾	20¼
36	24	100	34½	34½	..	Eureka Pipe Line		$5,000,000	$100	$1Q	8- 1-31	88	64½	70½	40	54¾	26
3	1	300	2½	2¼	2	Galena Signal Oil		$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
72	49⅞	300	65	60	58	Humble Oil & Refining		$74,103,300	$25	50cQ	7- 1-31	114¾	59½	128	74⅛	119	57¼
18¼	9⅞	3,300	14	13	12¾	Imperial Oil of Canada (new)	(sh)	25,421,768	N.P.	12½cQ	6- 1-31	104	56¾	41	22	30	15
21⅛	9⅛	No sales	..	..	..	Indiana Pipe Line (new)		$3,000,000	$10	25cQ	8-15-31	91⅞	74⅜	41⅞	26	41	14½
15⅛	8¾	8,400	13	12	11⅞	International Petroleum (new)	(sh)	14,247,088	N.P.	25cQ	9-15-31	55	35	30¾	15	24	11⅜
17½	11¼	900	12½	11⅞	11¾	National Transit		$6,362,500	$12.50	25cQ	9-15-31	32⅜	19⅜	25⅛	10⅛	22⅜	11½
14½	7½	100	8¾	8¾	..	New York Transit		$1,000,000	$10	25cQ	7-15-31	75	38½	17½	10	21⅜	10⅛
34¼	25	550	33	32⅛	..	Northern Pipe Line		$2,000,000	$50	$2SA	7- 1-31	69	56½	63	41	54	26¼
15½	8	300	10½	10	..	Penn Mex Fuel		$10,000,000	$25	75c	6-24-31	84	28	44½	20	32	12
16½	3¼	600	16¼	16	16¼	Solar Refining		$4,000,000	$25	....	12-20-29	..	..	50	29	33	4⅞
23⅞	12⅝	1,500	18¾	16¾	16	South Penn Oil		$30,000,000	$25	25cQ	6-30-31	71⅞	36¾	60¼	35⅛	45⅞	16⅛
17	10	300	13¾	13¾	..	Southern Pipe Line		$1,000,000	$10	50cQ	9- 1-31	19	15	22½	13	20⅞	8⅝
42½	31¼	200	42½	42½	..	Southwest Pennsylvania Pipe Line		$1,750,000	$50	$1Q	7- 1-31	102	70	70	60	64	32
38½	19⅛	8,000	27⅛	25⅛	25	Standard Oil of Indiana		$348,175,069	$25	25cQ	9-15-31	95⅞	70⅞	63	45	59⅞	30
23⅝	15⅝	2,400	20⅞	20	19¼	Standard Oil of Kentucky		$25,654,516	$10	40cQ	6-30-31	179¾	122¼	46⅞	29	40½	18⅝
36½	19¼	100	29	29	..	Standard Oil of Nebraska		$4,649,225	$25	50cQ	6-20-31	54⅞	39⅞	50¼	40	48⅞	34⅝
62½	35	550	53	50	50	Standard Oil of Ohio		$14,000,000	$25	62½cQ	7- 1-31	134	71	129	60	108½	43¼
3½	2⅝	100	3½	3½	..	Swan-Finch Co.		$861,466	$25	....	1-15-29	23¼	16	18	10	10	4

•Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Sept. 5)

1931 High	1931 Low	Week ended Sept. 5 Sales	Week ended Sept. 5 High	Week ended Sept. 5 Low	Close Sept. 4	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1¾	½	1,800	⅝	½	..	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
16⅞	8½	300	11½	11¼	..	British American Oil Corp.		1,311,321	N.P.	20cQ	7- 2-31	55	32¾	62	7⅞	23	13⅜
2⅜	¼	3,400	1⅛	¾	..	Carib Syndicate		$131.250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
20¾	8⅝	58,400	10⅝	9⅝	9⅝	Cities Service	(sh)	24,290,359	N.P.	30cA§	9- 1-31	90⅞	54	68⅛	20	44¼	13
84¾	61¼	800	63¾	63⅛	..	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	9- 1-31	103¼	94½	98¾	84	93⅞	78¼
½	⅛	600	⅛	⅛	..	Colombia Syndicate		$2,000,000	$1	....	.....	3¼	.76	2	½	¾	⅛
2¾	1½	No sales	..	..	..	Consolidated Royal		$5,527,875	$10	5cQ	7-25-31	8⅞	6¼	11⅛	2½	5⅞	2
⅝	¼	400	¼	¼	..	Crown Central		.....	....	....	.....	..	..	..	..	..	..
5	2	No sales	..	..	..	Darby Petroleum (new)		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
6	2½	100	3½	3½	3⅛	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
40⅛	26	No sales	..	..	..	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
75½	38	6,700	63	54	51⅝	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	7- 1-31	165	101⅛	209	115	166⅞	58½
⅝	¼	14,800	1/16	⅜	1/16	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1⅜	⅜
1⅞	½	No sales	..	..	..	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
1½	½	2,300	1	⅞	..	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
6¾	3½	1,200	5⅛	5	..	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
25	14⅛	2,300	15¾	15¼	14¾	Lone Star Gas	(sh)	5,000,000	N.P.	22cQ	6-30-31	69¼	48½	67⅞	28	55⅞	19⅝
½	⅛	6,500	1/16	¼	1/16	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	½	½	⅛
5	3	300	4	4	..	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38½	14	16	3
4⅞	1½	No sales	..	..	3½	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅝	2¼	7½	1¾
½	¼	No sales	..	..	..	Mountain & Gulf		$4,000,000	$1	....	4-15-31	1¾	.76	1½	½	¾	⅜
5⅞	3⅛	200	5⅛	5⅛	4½	Mountain Producers		$1,682,182	$10	25cQ	7- 1-31	28⅞	19½	22⅞	7	12⅛	3⅜
1½	½	No sales	..	..	1	New Bradford Oil		$1,095,291	$5	....	4-15-31	5⅝	4¼	5	2½	3½	1⅛
3	1¼	No sales	..	..	..	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
3¼	1⅛	No sales	..	..	..	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
½	⅛	900	1/16	⅛	⅛	Pandem	(sh)	489,875	N.P.	....	.....	6	2¼	3½	½	2½	¼
2	⅜	2,700	⅝	⅜	⅜	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅞
3⅛	½	1,500	2⅝	1½	1⅝	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4⅛	8½	1⅛	5⅝	1
3	1¼	600	2⅜	1⅞	1⅝	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	2	8⅝	2
1⅜	½	100	½	½	..	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	7¼	5½	5⅞	1⅞	2½	½
7¾	4	500	6⅞	6	5⅝	Salt Creek Producers	(sh)	1,496,859	$10	35cQ	8- 1-31	35	23⅛	25⅞	9	15¼	5¼
5¼	1	5,500	1½	1¼	1⅛	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	..	..	12	5⅝	10	2
1⅞	⅝	2,300	¾	¾	¾	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9⅛	4¾	6½	1¾	4½	⅜
3½	1½	300	2	1⅞	..	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
2¼	¼	300	⅞	¾	..	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and monthly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend of 2 per cent.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Sept. 5)

1931 High	1931 Low	Week ended Sept. 5 Sales	Week ended Sept. 5 High	Week ended Sept. 5 Low	Close Sept. 9	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
23	15½	2,400	18⅜	18	18	Amerada Corp.	(sh)	922,075	N.P.	50cQ	7-31-31	43⅞	27⅛	42⅝	17½	31½	16½
12⅜	5	500	7⅜	6	5	American Republics Corp.	(sh)	209,180	N.P.	....	12-31-30	85	51⅛	64¾	12½	37	5⅛
31	20	No sales	..	..	..	Associated Oil		$57.260,300	$25	35c	6-30-31	53⅜	37½	47¼	34½	51	30
23⅝	11⅛	7,000	17	15⅜	15	Atlantic Refining		$66,763,775	$25	25cQ	9-15-31	66⅜	50	77⅞	30	51⅜	16⅝
14½	5¾	7,100	8¾	8	8	Barnsdall Corp. A		$56,546,600	$25	....	5-11-31	54	20	49⅛	20	34	8⅝
12	5	23,200	10¼	8½	8⅜	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
47	15¼	5,800	22¼	19	18	General Asphalt	(sh)	413,333	N.P.	50cQ	9-15-31	94⅞	68	94¾	42¼	71½	22⅜
68½	27	5,800	44¾	38½	35⅛	Houston Oil		$24,968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
4⅝	2	2,100	3⅛	3	2⅝	Indian Refining		$12,564,070	$10	....	10- 1-30	39⅝	9	53	13⅛	17	2
4½	2	200	3	3	..	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9⅜	18	7	12	3½
3¼	1	No sales	..	..	..	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5½	10⅜	1⅜
16¾	5¾	5,500	10⅛	8¾	8	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	44½	25⅛	39⅞	22⅛	32	11
19½	7	8,200	11⅜	10	9⅛	Ohio Oil	(sh)	6,648,052	N.P.	....	3-14-31	84	58½	79⅞	64¼	32	16
35⅛	25	No sales	..	..	..	Pan American P. & T.		$50,084,700	$50	40c	7-20-31	50⅞	38¼	69	40½	46½	42
36½	24	No sales	..	..	..	Pan American P. & T. "B"		$121,110,650	$50	40c	7-20-31	59⅞	37¾	69¼	40½	67¾	30
4¼	1½	500	2	2	..	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1¾
20	10	No sales	..	..	..	Panhandle P. & R. pfd.		$2,564,400	$100	....	.....	108	70	76	47½	20	47½
16⅝	4¾	13,800	9⅝	7⅝	7¼	Phillips Petroleum	(sh)	2,593,075	N.P.	....	1- 2-31	53⅞	35¼	47	24¼	44⅜	11½
1½	½	900	⅝	½	..	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅜	1	2½	½
3⅜	1	6,400	2	1⅝	1½	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	7	3½	5⅞	½	7⅛	1⅛
20⅜	6½	3,400	12	9¾	9⅝	Prairie Oil & Gas		$60,848,000	$25	....	3-31-31	68	46	65⅜	40½	54	11¼
26½	14⅝	5,000	16⅞	15½	15	Prairie Pipe Line		$101,250,000	$25	75cQ	6-30-31	280	172	65	45	60	16⅝
6	1⅞	600	2⅞	2⅞	..	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
16	6	No sales	..	..	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
11⅞	5½	3,500	9	8	7⅜	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
6⅜	1	1,000	1⅝	1⅜	1⅜	Richfield Oil (new)		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
10¼	3⅛	4,900	4⅜	3⅞	3⅜	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	37½	32	42½	15	25⅜	5
42⅝	22	4,400	24¾	22	20⅛	Royal Dutch N. Y.	(sh)	611,303	....	$0.938	8- 4-31	64	44⅝	64	43⅛	56½	36⅞
20¾	10⅝	15,100	14⅞	12⅞	11½	Seaboard Oil of Delware (Mex. Seab.)	(sh)	1,244,383	N.P.	....	10- 1-24	72	4⅝	59⅜	8¼	37	9¾
34	17½	No sales	..	..	..	Shell Transport & Trading Co.		£23.985.000	£1	$0.966	7- 6-31	47⅞	41⅜	51½	40⅝	48⅜	26
10¼	4½	7,600	6⅛	5⅜	5	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39¼	23¼	31¾	19	25½	5¼
11	5	500	7½	7	..	Simms Petroleum		$8,353,620	$20	....	9-15-30	27½	18⅛	40⅛	15	37	5⅝
15⅞	6¼	43,200	11½	9½	9⅛	Sinclair Consolidated	(sh)	5,500.000	N.P.	....	4-15-31	46¾	17⅜	45	21	32	9¾
103	77	300	102½	102	..	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	8-15-31	110	102½	111	103	112¼	86
12⅞	3½	2,500	7½	5¼	5⅛	Skelly Oil		$27,441,250	$25	....	12-15-30	42⅝	25	40½	28	12	10⅛
21	17⅜	39,000	19½	18	17⅛	Socony-Vacuum	(sh)	31.923.072	$25	40cQ	9-15-31	..	..	..	..	..	..
51¾	31⅛	16,900	41¼	38⅞	36½	Standard of California	(sh)	12,594,098	N.P.	62½cQ	9-15-31	80	63	81⅞	51½	75	42½
19*	8¾	700	12¾	12¼	11½	Standard of Kansas		$8,000,000	$25	....	3-16-31	37¾	15	33¾	18	49	14⅜
52½	30⅝	32,100	41¼	38½	36¼	Standard Oil of New Jersey		$634,999,200	$25	25cQ§	9-15-31	59⅜	37¾	83	49	84⅞	32½
45¼	31	400	37⅛	37⅛	37⅛	Sun Oil	(sh)	1,416,869	N.P.	25cQ	9-15-31	77	31½	68⅜	55	70	39
1¾	⅝	100	1	1	..	Superior Oil Corp.	(sh)	766,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
36¼	18	29,200	27	23¼	23⅝	The Texas Corporation		$246.204,900	$25	50cQ	7- 1-31	74¾	50	71⅞	50	60½	28¼
6½	2½	1,500	4¾	4	4	Texas Pacific Coal & Oil Co.		$9,304,890	$10	....	12-31-29	26⅝	12¼	23⅞	9½	14½	4
18	10¼	No sales	..	..	..	Tide Water Oil	(sh)	2.191.759	N.P.	15cQ	6-30-31	41½	19⅝	40	14	31	13
83	50¾	100	60	60	..	Tide Water Oil pfd.	(sh)	19,947,000	N.P.	$1.25Q	8-15-31	100⅛	86	97½	85⅛	94⅞	71
9	4	8,400	7⅜	6	5⅝	Tide Water Associated	(sh)	5,560,424	N.P.	....	2-16-31	25	14¾	23½	10	17¾	5⅞
68	38	300	51	50	48	Tide Water Associated pfd.		$73.284.500	....	$1.50Q	7- 1-31	..	..	90⅞	74½	89¾	55
26⅝	14	4,500	17⅝	16⅜	15½	Union Oil of California		$104,342,375	$25	50cQ	8-10-31	58	42⅜	57	42½	50	10⅛
25⅛	20	1,000	20¾	20	20	Union Tank Car	(sh)	1,254,048	$100	40cQ	9- 1-31	128⅛	110	163¾	121⅞	38½	23
7⅜	1⅝	1,990	3¼	2½	2⅝	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
9⅜	3½	1,700	5⅛	4⅝	4½	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus extra dividend of 25 cents.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

CARBONIC PRODUCTS CO. MAKES NEW REFRIGERANT

(Continued from Page 14)

pecially when used in connection with the ordinary hot air heating system.

Of equal importance are the developments in the use of the liquid carbon dioxide. Its principal use has been to supply the "fizz" in carbonated drinks but more recently large quantities of it have been brought into use as a refrigerant in cooling office buildings and stores. This may even spread to the general adoption of centralized cooling plants in apartment houses.

Naturally the economics involved must be worked out as well as the mechanical problems and years of research and endeavor lie before the new industry.

Description of Process

The process in operation at the Tulsa plant is an adaptation of certain principles and practices which are common to natural gasoline absorption plants and some which had to be worked out by the local company. Reference to the accompanying flow chart outlines in a very general way the procedure followed throughout the operation.

The natural gas which serves as the basic material is burned under an ordinary steam boiler with air conditions maintained so as to provide as near complete combustion of the fuel to CO_2 as possible. The stack gases are withdrawn by a blower and are forced through a scrubbing tower. Here the gases are brought in intimate contact with water which reduces their temperature and removes any free carbon that might be present. The washed gases are then led into an absorption tower which is filled with an absorbing medium. The absorbing medium is a water solution of triethanolamine, a product of the Girdler Corp. and its use is said to be fully covered by patent letters both in this country and abroad. The NH_2 radical combines with the CO_2 to form an unstable compound the reaction of which is reversible by applying heat.

Because of this property this liquid removes the carbon dioxide while the nitrogen and other gases are allowed to escape to the air. In a normal operation the natural gas supplied now yields approximately 10 per cent CO_2, 89 per cent nitrogen and 1 per cent other gases.

The saturated solution is withdrawn continuously off the absorption tower and charged to a steam heated still where the CO_2 gas is liberated. The lean solution is drawn off of the still and charged back into the absorber.

The CO_2 gas is run to a gasometer which serves as a surge tank to supply the compressors. There are three compressors connected in series with cooling coils between each stage. The compressors are driven by vertical reciprocating steam engines which utilize most of the power supplied to the boilers in producing the CO_2 gas. Steam is also used for distilling, so the entire operation affords a balance between the steam needed and the volume of CO_2 gas processed.

Complete liquefaction has taken place at this point and the liquid CO_2 accumulates in a small pressure drum.

The steel cylinders are filled from this drum in supplying the liquid to soda fountains and building refrigerating plants. Two sizes are used, namely, those holding 20 pounds and those holding 50 pounds of the liquefied gas.

Making Dri-Frost

To make "Dri-Frost," the solid form, the liquid CO_2 is allowed to expand in what is known as a snow chamber. This is simply a well insulated compartment on the sides of which the crystals of solid CO_2 collect during the change of state of a portion of the liquid back to a gas. The refrigerating effect is sufficient to convert about 60 per cent of it into "snow" and the remaining 40 per cent is returned back to the system through exchangers where maximum benefits are derived from its cooling value. It is also recovered without loss in volume and this fact represents an important saving in the process.

The snow chamber is filled in about 10 minutes of time and is ready for dumping. It is not convenient to use the solid in the form of flakes so this snow is compressed within the chamber by a double acting press. This press has a dual piston arrangement. These pistons are 10 inches square across each face and act against each other. One piston acts upward through the snow chamber while the other one presses downward. Approximately 500 pounds per square inch is used to form the cake. When it is formed the lower piston pushes the cake up through the top of the chamber and the operator removes it. Each cake is weighed and then placed in storage. Each cake is a cube 10 inches along every side and weighs between 50 and 55 pounds.

Storage is provided for 40,000 pounds of the solid and there is sufficient space to store many times this quantity of carbon dioxide in the liquid state by filling it into cylinders.

The absorption and distillation unit was designed and constructed by the Jackson Engineering Co., while the sectional steel buildings were constructed and supplied by the Braden Steel & Winch Co.

DRILL MUST INSURE FUTURE OIL SUPPLY

(Continued from Page 18)

at refineries is continued it is going to become necessary soon to adjust the visible stock of crude oil underground to the constantly decreasing reserve, for it was shown by James McIntyre in his article on Page 22 of the July 30 issue of The Oil and Gas Journal that there was a net decline in production during the first six months of 1931 compared with the first six months of 1930 of 53,119,423 bbls. This came about in spite of the discovery of new fields of great size and production of an excess of oil from those areas in some instances.

Drilling Has Lagged

During the first half of 1931 there were completed in this country a total of 6,373 tests of which only 2,988 proved to be oil wells of commercial value. The initial production of those wells is placed at 4,131,038 bbls. per day or an average production of 1,382 bbls. each.

At first glance this would seem to dissipate the idea of any need for drilling of new territory to develop new potential supplies of oil, or drilling in proven areas to develop greater output.

Analysis of these figures, however, prove something different. Of the 2,988 oil wells it is found that 350 of them were in Oklahoma with a total initial production of 1,431,708 bbls., or an average of 4,090.84 bbls. each; 936 were in East Texas, with a 2,071,016-bbl. initial production and daily average of 2,212.63 bbls.; and 19 in New Mexico (Hobbs Pool), with 74,219 bbls. initial and 3,906.26 bbls. average.

This shows that while East Texas is large in area, and it is admitted will require many thousands of additional wells to fully develop it, two other areas that have given great initial production are about completely drilled up. They are Oklahoma City Pool and Hobbs, N. M., field, each of which had wells of greater initial potential than East Texas.

If it is admitted that Oklahoma City and Hobbs, N. M., fields have passed the peak of their production, these areas cannot again be used to develop new supplies of oil for future requirements. The oil in these fields can be withdrawn and used but because of water movements in the producing horizons these rates of withdrawal will be limited to about 200,000 bbls. for Oklahoma City and 40,000 bbls. daily for Hobbs Pool if the water movement is to be controlled.

With these large potential pools out of the picture because of the development already completed it is found that of the 2,988 oil wells there were 1,683 drilled in territory where their total potential amounts to only 554,065 bbls. or an average per well of 328 bbls. daily. In other words 56.5 per cent of the completions during the first half of 1931 were wells of only average size discovered during the past 10 years in this country. This average is 374 bbls. daily as shown in table on Page 94 of the Annual Number of The Oil and Gas Journal of January 29, 1931.

Large Pools the Exception

When it is considered that drilling has been carried on in the East Texas area for 45 years before the present pool was discovered and that it took 25 years of development to uncover the pools from Caddo to Zwolle, La., on the east side of the Sabine uplift region, and then the discovery was made purely by wildcatting as on geology at the surface indicated the underground conditions, possibilities of finding new pools of large potential is minimized.

It is to be noted that California has not been included in the above tabulation of large pools discovered in 1931 and the wells there averaged 1,130 bbls. each daily average initial production. This would still further reduce the average of the wells found in the average pools. California still further occupies the position of being able to deliver gasoline at the eastern seaboard at a profit if the price is above 7 cents per gallon and therefore will be an influence to be reckoned with so far as the Mid-Continent area is concerned just the same as import oil.

If the production from the Mid-Continent area falls below requirements the price for oil here will rise above the normal level and then California crude and gasoline will move through the Panama Canal in competition with it, so it seems essential that a well regulated and controlled drilling campaign be started in the Mid-Continent states to make available an ample supply of crude oil that can be withdrawn from the pools at the required rate to give this area its share of the petroleum production.

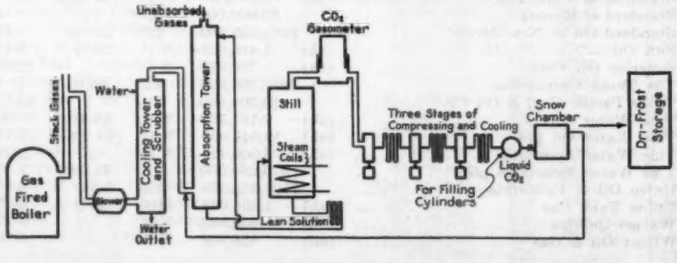
There is a great difference between estimated potentials of oil underground and the rate at which this oil can be produced from the wells to secure maximum extraction and control water flooding of the producing horizons. Aside from East Texas there is no pool in the Mid-Continent area now opened that can be materially increased in its rate of daily production beyond that indicated in the accompanying table.

Needs and Supply Balanced

That table shows that daily needs and supply practically balance and other figures cited show that the rate of drilling has lagged behind normal. The decline in old wells has been excessive and it is admitted that the demand for gasoline has been about stationary during this past summer. With any upward tendency of business in this country next summer it is difficult to see where the oil will come from to meet the demand, unless it is permitted to be transferred from California and imported from foreign fields.

East Texas Field is not overlooked in making this estimate but it is assumed that it will be controlled as to both rate of production and price and under such conditions will serve only to make up for what would otherwise be a deficiency in crude oil supply. The length of time East Texas will be able to supply this reserve depends entirely upon the manner in which the wells are handled and the control applied to water movement in that field. If water movement is controlled it is estimated by some authorities that those wells will not produce safely over 200 bbls. per day each on the average.

Therefore to produce, say, 400,000 bbls. of oil per day will require 1,800 wells each of 225 bbls. capacity, and it is a well known fact that to secure that average will require a good many more wells than that number. This will mean a conservative drilling campaign in East Texas and should likewise mean that those oil companies now in the industry should also start promptly to explore undeveloped territory for future oil reserves to be drawn upon as the decline from the present fields continues.



Simple flow diagram showing the essential steps in the processing of the flue gases to make the solid carbon dioxide refrigerant.

CALL FOR FEDERAL REGULATION DISCUSSED

(Continued from Page 24)

ducing waste. Laws requiring the production of oil to be in ratio with the volume of gas produced have accomplished much toward the economic recovery of oil from the sands. Legislative enactments empowering state commissions to compel the proration of oil pools within the state are salutary. But even if such measures shall stand the test of constitutional validity, they do not cure the evil—they are in nature like locking the barn after the horse is stolen. They do not prohibit or even retard the bringing in of new fields of production. State laws do not therefore fully and adequately solve the problem either from the standpoint of stabilization in which the industry is interested or that of conservation in which the nation is vitally concerned.

This is a national problem which demands federal regulation for its solution. The states acting as separate units cannot solve it. Control and regulation of new producing fields to be effective, must apply alike to all states; there cannot be adequate uniformity except through federal legislation; the refusal of a single state to withhold new production from the market would be similar to one operator in a field refusing to prorate.

Federal Control Should Be Upheld

The oil industry in all its branches is national in function and character; its products move largely in interstate commerce; its state operations are almost wholly incidental to an interstate movement of its products; it deals with an article which concerns the welfare and comforts of the people of the nation and which is of vital need in a wide industrial use to which it has been put and which is essential in national defense; its operations in their entirety involve the consumption of a product which is nonreplaceable; it has been justly accused of committing both economic and physical waste of this product; conservation is not alone a matter of state concern but it is a subject for the exertion of national policy so far as the movement of the product in interstate commerce is concerned; inherently there is required a uniform system of control and regulation. This situation not only invites and makes possible but it demands national regulation.

Commerce Clause Invoked

The exertion of federal control under the commerce clause has not been confined to the field encompassed by the so-called police regulations and inhibitions, although the fertility of that field for a luxuriant growth of federal legislation is well known. There has been a development of federal regulation of comparative recent origin which has grown out of those situations which Justice Holmes described in the Superior Oil Case, 280 U. S. 390, as presenting "dramatic circumstances such as a great universal stream" of commerce and "exhibiting grounds of policy" which de-

mand and permit the exertion of federal regulation of industry. The court in that case no doubt had in mind the infinite variety of detailed control which Congress had imposed upon the meat packing and the grain industries and which it had sustained in Board of Trade v. Olsen, 262 U. S. 1, and Stafford v. Wallace, 258 U. S. 295. This character of legislation sustained in those cases marked a new step into a wider field of federal control of specific industries.

The antitrust legislation of 1890 applied a federal economic policy to all industry alike. As to this type of legislation, the court said in the Northern Securities Case, 193 U. S. 337:

"Whether free operation of the normal laws of competition is a wise and wholesome rule for trade and commerce, is an economic question which this court need not consider or determine * * * and as Congress has embodied that rule in a statute, that must be for all the end of the matter."

But the stockyards act and the grain futures act applied a federal economic policy to specific industries and were sustained under the doctrine, as Justice Taft said, which "fitted the commerce clause to the real and practical essence of modern business growth." This modern doctrine does not permit of federal regulation of every industry by any means, but it does recognize that there are some industries whose contribution to the stream of interstate commerce is so steady, continuous and universal, and where the need of application of a national economic policy is so impelling, that federal control is imperative in the public interest and for the general welfare.

Control of Transportation

Dramatic circumstances exist in the oil business, both as to the universal stream of interstate commerce and as to the grounds for exercise of national policy with respect to that business, which make possible a valid extension of the already existing federal control over the transportation of oil and its products.

The interstate commerce act as amended by the provisions of the act of 1920, places "the transportation of oil or other commodity, except water and except natural or artificial gas, by pipe line or partly by pipe line and partly by railroad or by water" under the jurisdiction of the Interstate Commerce Commission and further makes "common carriers" of all "pipe line companies." The constitutionality of this act has been sustained in the case of United States v. Ohio Oil Co., 234 U. S. 548, where certain pipe line companies were compelled to obey orders of the commission requiring the filing of schedules of rates. The act as it now stands, while it prohibits the building or extension of railroads except upon permission of the commission, is silent in this regard on the extension of pipe lines. This provision of the act has been sustained in the courts as within the power of Congress, and should be amended so as to cover pipe line extensions.

State Control Limited

The transportation of oil is a great stream in interstate commerce, dramatic in character and universal in its flow. A very small percentage of any state's production of crude oil rests or is consumed within its own borders; a great proportion moves beyond its lines to the country's limits and beyond. So universal is this stream and so dramatic are the circumstances surrounding its uses that even the state where the stream finds its source cannot hold the product for its own consumers even though the supply may have reached a point of near exhaustion. In the case of Oklahoma v. Kansas Natural Gas, 221 U. S. 227, the court said:

"If the states have such a power (the power to retain their own products) a singular situation might result. Pennsylvania might keep its coal, the Northwest its timber, the mining states their mineral. And why may not the products of the field be brought within the principle? * * * To what consequences does such power tend? If one state has it, all states have it; embargo may be retaliated by embargo, and commerce will be halted at state lines. And yet we have said that 'in matters of foreign and interstate commerce there are no state lines.' In such commerce, instead of the states, a new power appears and a new welfare, a welfare which transcends that of any state. But rather let us say it is constituted of the welfare of all the states and that of each state is made the greater by a division of its resources, natural and created, with every other state. That was the purpose * * * of the interstate commerce clause of the Constitution of the United States."

Streams of oil or gas are so characteristically interstate commerce, that a state cannot even impose a license tax based upon the amount of oil or gas which it contributes to the stream. So held the court in United Fuel Co. v. Hallanan, 257 U. S. 277. The right of owners of oil, gas or grain to withdraw their proportions from the stream before it crosses the state line does not take away its interstate character and does not thereby prevent the exertion of federal control or create the right of state interference. So said the court in the Chicago Board of Trade Case, 262 U. S. 1; in Eureka Pipe Line Case, 257 U. S. 265, and in the United Fuel Case, 257 U. S. 277.

Power With Congress

There is strong support to be found in the case of Pennsylvania v. West Virginia, 262 U. S. 553, for the assertion of federal control over an interstate stream where the supply in the stream is on the wane and apportionment must be made in order to affect its equitable distribution among the several states accustomed to draw upon it. In that case, Mr. Justice Van Devanter, speaking for the court, denied the right of West Virginia to apportion its own production of gas for its own consumers and said: "If there be need for regulating the interstate commerce involved, the regulation should be sought from the body in whom the power resides." In other words, its apportionment should be regulated by Congress. If Congress can apportion the stream when it is showing signs of running dry, may it not in the interest of national conservation prorate on an equitable basis as among producing states, their contributions to the stream in order to forestall its premature depletion? The answer to this question is to be found in those dramatic circumstances, mentioned in the Superior Oil Case, which inhere in and surround the production and universal use of oil and in the fact that it is an exhaustible, nonreplaceable, natural product and is being subjected to enormous waste by lack of uniform control over the sources and tributaries of the stream. These are certainly dramatic circumstances calling for the exertion of federal control.

Military Restriction

We have witnessed recently how overproduction of oil, not only disturbs but actually stops the interstate flow of oil where because of a ruinous price structure caused by overproduction, the State of Oklahoma prevented producers from selling their production and threatened a continuance of this policy by armed forces until oil should return to a price of $1 per barrel. Such an economic disturbance, "dramatic" in its consequences, is far greater than ever existed in the grain or meat industries where federal regulation was long since applied in the grain futures act and the stockyards act. Said the supreme court in the case of Chicago Board of Trade v. Olsen, 262 U. S. 1, in upholding the grain act:

"The question of price dominates trade between the states. Sales of an article which affect the country-wide price of the article directly affect the country-wide commerce in it. By reason and authority, therefore, in determining the validity of this act, we are prevented from questioning the conclusion of Congress that manipulation of the market for futures on the Chicago Board of Trade may and from time to time does, directly burden and obstruct commerce between the states in grain and that it recurs and is a constantly possible danger."

In the oil business it is not manipulation but the much more to be dreaded results of overproduction that directly burdens and obstructs commerce and without federal regulation it "will recur and is a constantly possible danger." Overproduction causes waste; it reduces prices to levels which only the giant units in the industry can endure and this in turn is certain to bring monopoly.

There is a reason for sustaining federal regulation of oil transportation which is not found in the grain, meat, food, steel or similar industries—oil cannot be replaced. There is a reason for sustaining federal regulation of the oil stream which is not found in the coal, copper or other mineral industries, the products of which like oil also are exhaustible—the supply of oil owing to its mobility under high pressure and the compelling individual and state competition for its capture and sale, cannot be controlled within reasonable limits by separate state legislation and is subjected to enormous waste.

Suggested General Principles

Federal legislation should be so designed as to permit "the country's oil resources to be drawn upon without waste and in orderly response to the economic needs of the United States," and should be made applicable only to oil pools hereafter discovered. It should embody the following general principles:

1. A Federal Oil Conservation Board should be created with ample power to enforce the provisions of the act and to make needful rules and regulations consistent therewith.

2. This board should take over the powers now held by the Interstate Commerce Commisison with respect to oil pipe lines under the transportation act of 1920.

3. This board should be empowered after proper hearing upon due notice, to grant or deny an application, made by a carrier of oil, either by pipe line or railroad or both, to extend a pipe line or railroad to a new oil pool or field.

4. No carrier of oil, either pipe line or railroad should extend a pipe line or railroad to a new oil field or pool without having first obtained a certificate of permission from the Federal Oil Conservation Board.

5. This board may deny such application for either or any of the following reasons:

a. If, in its judgment, the supply of oil from the then producing areas in the United States is sufficient to meet the market requirements of domestic consumption.

b. If, in its judgment, the oil to be transported by the applicant carrier, is not to be extracted by such methods as are designed to protect the interest of all proprietors drawing from the common reservoir.

6. This board may grant such application after being satisfied upon both grounds contained in the next preceding paragraph and in granting such application may fix the quantity of oil to be transported through such pipe lines or by railroad and may enlarge the amount from time to time as market requirements may require.

7. This board should be empowered to prohibit the transportation in interstate commerce of refined products from crude oil taken from any new pool for which a certificate of permission has not been granted as herein provided for.

8. The antitrust laws should be modified so as to permit operators or producers of oil to make agreements for the co-operative or unit development of oil pools when made for the promotion of conservation.

Legislation of that general character would, in my judgment stand the constitutional test and might be supported by the oil producing states by compact. Such a law would go far to remove the menace of new production; to restore the balance between supply and demand; to bring back the wells of settled production in the country to economic values; to force our oil supply into its essential uses; and to cause our oil reserves to be drawn upon without waste and in orderly response to the nation's needs.

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 93)

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.		Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Dominguez	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote, Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	.....	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.....	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.....	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.....	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.....	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.....	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.....	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.....	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.....	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.....	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.....	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.....	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.....	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	.....	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	.....	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	.....	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	.....	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

WHY ADEQUATE OIL LEGISLATION FAILED

(Continued from Page 15)

some. In the United States we prefer to bring about these changes by certain due processes of law in which individual rights are carefully scrutinized and attention is given to avoiding conflict with other major public policies. This is slower and sometimes a more difficult method than that used by either dictator or mob; but it is also less painful and we believe it is usually more satisfactory in permanent results.

Situation in East Texas

But the great mass of human beings is more interested in results than methods. When the need for change becomes great and delay extended there is always danger that mob action will supplant established procedure.

In East Texas a vast area covering three counties was under process of rapid development. It was peopled by men and women of small means, close to the soil. They looked upon this oil discovery as a means to lift them out of that condition. Their properties were turned over to the oil industry with every confidence the State would protect their rights. It began to appear their confidence was misplaced. Their oil was being extracted and their lands despoiled with wholly inadequate returns. Evidence in the governor's office is to the effect that not over 10 per cent of the royalty to landowners has yet been paid. Much of the delay no doubt is due to abstracting of titles; but there is reason to believe many irresponsible operators are holding up royalty on any excuse whatever and spending the money, leaving little assurance of ultimate payment to the royalty owner. In many instances settlement was being attempted as low as 5 cents per barrel. The governor termed these attempts as "unconscionable and thievery." His special investigators reported to him that conditions were fast approaching a crisis where those being wronged or disappointed were ready to take the law into their own hands.

In hearty sympathy with their indignation, but to avoid such procedure, the governor proceeded to exercise the function of the State by direct action to protect the property of those who are especially entitled to the protection of the State and to avoid the natural results to be expected where that protection is withheld. The governor feels deeply the injustice that has been done this great group of small landowners and makes no reservation in stating that he strongly believes it to be the duty of the oil industry to so adjust its affairs in East Texas as to make restitution to these people who placed faith in it.

As one listens to him discourse on this subject the impression is gained that what happens to that part of the oil industry engaged in this orgy is not of such vast concern to him since those individuals brought trouble on themselves. But he is deeply concerned that justice shall be done the landowner who turned his property over to the oil industry with confidence that the State would protect him against injustice; and he is concerned also with his responsibility as chief executive to see that the vast resources of the State are not despoiled. He knows the existing law and machinery is failing to do those things. Being a man of action he does that which is necessary to secure results. A conscientious executive could do no less when the issues are grave and the loss irreparable.

Whether or not strict interpretation of the law will eventually sustain him in the methods used is not within the province of this article to discuss. We do state, however, that no executive should be placed in a position where he is forced to use these methods. The State should enact laws that will care for such conditions under its ordinary procedure.

The legislature would gladly pass such laws and state officials would enforce them if the issues were made clear and the remedy sound; but the obstructive tactics of those who wish to preserve the present status, believing that under it they have better chances to get ahead, makes the passage of such legislation difficult. We repeat, the issue is not at this time one of monopoly and antimonopoly. It is, instead, whether the law of civilized society shall be substituted for the law of the jungle in the operation of the American oil industry. What will happen to the little man under continuance of the present order is not difficult to foresee. He is not fitted to survive in a struggle where only the fittest survives.

RECOMMEND 2,376,000 BARRELS PER DAY

(Continued from Page 13)

porters, it should be understood and carried out as a states gentlemen's agreement.

"This curtailment policy is contingent upon the above suggested fair price being paid within 30 days from September 15, 1931. After we have agreed on allowables for our states and importers, if crude prices do not conform to our suggested fair price, then 30 days from September 15, 1931, and each 30 days thereafter, each regulatory body present and each importing company promise to reduce allowables recited herein automatically 10 per cent each month until said fair suggested price is secured."

Texas Is Blamed

Wirt Franklin, whose work as a conservationist goes back to the days of Cushing and Healdton and who was one of the prime movers in giving Oklahoma a conservation law tight enough in its provisions to stand the tests of the courts for 16 years, said that if anything is to be accomplished there must be some self-sacrifice. Selfishness which has fought conservation up to now must be set aside. Each state must give up to some degree for the general welfare of all. Oklahoma, he said, had cut its actual production from 750,000 bbls. a day to less than half that quantity before martial law was put into effect in the larger fields. California had reduced its production from 800,000 bbls. down to 500,000 bbls. a day; Kansas is below 100,000 bbls. a day with a potential much in excess of that figure. Mr. Franklin put it up to Texas, which he said had increased its production 300,000 bbls. a day since the curtailment order was issued in that State. All that need be done is to keep production down to demand. The price will then take care of itself. At the present low prices it would be better if the oil remained in the ground a year or even two years. He called upon the importers to meet the issue by curtailing their imports commensurate with the curtailment in the flush fields of this country.

Roy Johnson spoke in favor of each state curtailing its production to the needs of its trade territory. In the past, he said, every state has tried to get all the production it can and to dump surplus oil into the trade territories of other states, creating market demoralization.

E. B. Reeser said that until the public service commissions of the oil-producing states had taken hold of the conservation movement the public believed the movement was merely a fight among the oil companies. Now the public is coming to understand that it has an interest in the matter. In California the public is much interested and so much so that at a union labor meeting in Los Angeles resolutions were passed expelling from the union any member that bought gasoline at a cut-rate station. The people of Kansas, Oklahoma and Texas have yet to realize the importance of the gross production tax, he continued. The states depend largely on the oil industry for funds to run the government and if gross production taxes are low the money must come out of the people through some other form of taxation. The speaker said that 90 per cent of oil producers are in favor of production conservation. Ten per cent have acted as stumbling blocks to the success of the movement. All oil-producing states are in line excepting Texas. Mr. Reeser thought the Texas legislature should be censured for its failure to pass legislation that would make conservation effective. The confused state of oil affairs in Texas has brought about the present demoralization in the industry, Mr. Reeser said. "We would have had stabilization had it not been for the fear of a blow-up in Texas," he concluded.

Importers Heard From

W. S. Farish, president of the Humble Oil & Refining Co. said the oil industry was in no different position from any other basic industry. They have all overproduced. The machine age has made it possible for every individual to overproduce. The oil business differs from other business, however, in that if it overproduces it commits waste because it overproduces an irreplaceable commodity. Ever since President Coolidge inaugurated the movement for oil conservation we have been charged with wastefulness. The only way we can have prosperity in the oil business is through orderly production of crude oil. We have 650,000,000 bbls. of crude and refined oil in storage, he said, and we do not want any more. The structure is top heavy with stored oil. We must reduce these stocks. Oil in the ground is stored oil. Owners of oil in storage tanks do not want to sell it at present prices, then why should owners of oil in natural storage—the earth—sell it at ruinous prices? Mr. Farish said the Standard Oil Co. of New Jersey, of which his company is a subsidiary, has reduced its imports. In 1931 it will import 2,000,000 bbls. less than in 1930 and 4,000,000 bbls. less than in 1929. Its imports this year will average about 54,000 bbls. per day.

Rush Greenslade, vice president of the Gypsy Oil Co., a subsidiary of the Gulf Oil Corp., said the Gulf organization imported only crude oil. In 1930 it imported a daily average of 65,605 bbls.; in 1929, 79,077 bbls. but in July and August of this year the company had reduced its imports to 36,000 bbls. and 33,000 bbls. per day, respectively. This reduction, he said, had been made without any agreement with any other company. The company based its action on the principle of good buisness, he said.

Thomas F. Lydon, vice president of the Shell Petroleum Corp., assured the commissioners that the Shell organization would go along with any program of conservation that was agreed upon.

A. W. Peake was invited to speak for the Standard Oil Co. of Indiana. Mr. Peake said he had accepted the invitation to be present under a misunderstanding of the objects of the meeting. The invitation should have been sent to the president of the Pan American Petroleum Corp. which is the importing subsidiary of the Standard Oil Co. of Indiana, and he did not feel that he was in a position to speak for that company.

Governor Murray Speaks

Governor Murray was invited to address the meeting and he spoke for 30 minutes. He defended his action in declaring martial law in order to shut down flush oil fields in Oklahoma until what he considered a fair price for oil had been established in the State. The governor, who spent several years in South America, said that continent was a great storehouse of oil and could supply the world. Proven oil fields in Peru and Bolivia were shut in awaiting the time when the oil could be put on the market profitably. Venezuela and Colombia had tremendous oil fields. It was well for American oil men and the American people to know this and guard against the flood of oil that could be poured into this country from the countries to the south. It took only a very small force of soldiers to shut down Oklahoma oil fields, he said. Oil men's respect for government and not their fear of the soldiers made it possible to use only a handful of men in the execution of his orders, the governor said.

World Production

The Oil States Advisory Committee approved of estimates on the domestic production necessary to meet the needs of refiners for the years 1931, 1932, 1933 and 1934 as follows per day: 1931, 2,395,000 bbls.; 1932, 2,407,527 bbls.; 1933, 2,479,433 bbls.; 1934, 2,555,449 bbls. This program provides for a certain quantity of crude and refined withdrawals from storage as follows: In 1931, 22,000,000 bbls., an average of 60,274 bbls. per day; in 1932, 71,000,000 bbls.; a daily average of 193,989 bbls. per day; in 1933, 76,000,000 bbls., a daily average of 208,219 bbls. per day; in 1934, 80,000,000 bbls., a daily average of 219,178 bbls. These figures represent a percentage decrease of 1.75 in 1931; 5.42 in 1932; 5.63 in 1933 and 5.74 in 1934.

The committee estimates the production of South American and New Mexican oil in the four years as follows: 1931, 531,000 bbls. per day; 1932, 594,066 bbls. per day; 1933, 613,699 bbls. per day; and in 1934, 633,521 bbls. per day. Europe outside of Russia and Sakhalin in 1931, 158,000 bbls. per day; 1932, 108,503 bbls. per day; 1933, 112,085 bbls. per day; 1934, 115,707 bbls. per day. Russia is allowed the following: In 1931, 474,890 bbls. per day; 1932, 572,133 bbls. per day; 1933, 673,395 bbls. per day; and 1934, 773,088 bbls. per day.

The combined production of Asiatic fields and all others outside of the Western Continent and Europe is projected as follows: In 1931, 295,959 bbls. per day; in 1932, 271,787 bbls. per day; in 1933, 280,772 bbls. per day; and 1934, 289,838 bbls. per day.

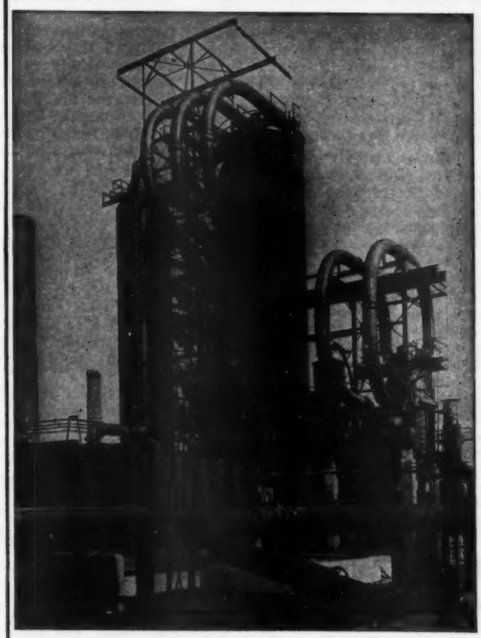
World production based on the figures adopted by the advisory committee would be, in 1931, 3,920,123 bbls. per day; in 1932, 4,153,005 bbls. per day; in 1933, 4,372,603 bbls. per day; and 1934, 4,591,781 bbls. per day.

Chairman Murray's Report

Chairman Cicero I. Murray announced that as to the balance of 1931 it was agreed that the domestic figures for 1932 would be placed in effect for October, November and December of this year, but just as a test for 30 days and subject to revision if it should develop that the demand is below production, and that crude is being stored. A committee will confer with the Texas Railroad Commission on September 18 and a committee will then go to Washington to confer with the Federal Oil Conservation Board to get its approval, and also with Secretary Lamont as to securing some statement from importing companies as to curtailment of production in South America, and of imports. The program, he said, would also be submitted to the American Petroleum Institute for approval and in the meantime producing companies in all the foreign fields will be conferred with to bring about a world wide curtailment program and to put into effect a definite three-year program.

GULF

Modern Methods Make Modern Gulf Products



the largest Atmospheric-Vacuum Still ever built.

Paraffine and Coastal Crudes

Gasoline · Lubricating Oils

Naphtha · Gas · Oils

Wax · Petroleum Coke

Cylinder · Engine · Cordage

GULF REFINING COMPANY

General Sales Offices: PITTSBURGH, PA.

Gum Problem Increases in Importance

Greater Demand for Antiknock Gasolines Stresses Necessity of Additional Data on Relationship to Motor Performance

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

When gasoline was just gasoline and sold for 25 to 30 cents a gallon, untaxed, no one blamed the fuel when the 1918 model automobile couldn't be induced to start on a cold morning and the crankcase had to be boiled out to keep down dilution. Valves were ground every few months, school children learned how to replace burned-out connecting rods, and spark plugs were cleaned weekly. The story of the gradual improvement of the automobile is a long one in which the petroleum refiner made many of the advances possible. It is an interesting paradox that as gasoline was improved and fell in price in spite of the introduction of the gasoline tax levy, the motorists began to pour upon gasoline its full share and more of criticism. Material for this onslaught was provided by the refiners themselves who were uncovering a multitude of facts respecting detonation, dilution, vapor lock and the like.

Because of a general lack of understanding of the phenomenon of gum formation, demands upon the refiners to improve their gasoline did not extend to the gumming properties, being concerned principally with lower initials and endpoints and better color. It is also to be pointed out that before the acceptance of lower color standards for gasoline and dyed gasolines, the cracked motor fuel was drastically treated to meet the color requirements so that the gumming characteristics were well taken care of by the sulphuric acid. With the arrival of lower color specifications the gumming characteristics became apparent, and as the refiners seek to increase the antiknock quality of their gasoline, placing more and more reliance upon cracking processes the problem of gum control has attained major proportions.

Gum Problem

A difficulty which has delayed the satisfactory solution of the gum in gasoline problem has been the lack of a convenient method of determining gum content and gum stability. The simpler methods, such as the copper dish test, which have been used here and there, have confused gum content and gum stability and have given discordant results with all gasolines except those possessing far greater stability than needed. Refiners have been unwilling to reject gasoline on the copper dish test when they knew that it could be used with perfect satisfaction. Principal objections to this test are lack of oxidation control, possible catalytic effect of the metal and failure to distinguish between preformed and potential gum.

The discovery that only actual or preformed gum was harmful to engine operation was one of the most important steps toward the solution of the gum problem. The presence of preformed gum can be determined fairly easily and accurately by several methods, among them the steam oven evaporation method and the air jet method. Of utmost importance in estimating how long a gasoline will remain in satisfactory condition is its gum stability. Refiners who have been able to dispose of their gasoline after manufacture without long intermediate storage have been able to tolerate much greater gum instability and this probably accounts for the general lack of agreement on the permissible limit for gum in gasoline and the wide divergence of opinion on the importance of gum in determining the utility of a motor fuel. One technologist reports that a new automobile consumed 78 gallons (in 1,068 miles) of a gasoline which showed a copper dish test of 351 mg. per 100 cc. and a steam oven test of only 6 mg. per 100 cc. without experiencing trouble.

Several leading refiners have, according to their own statements, marketed gasoline with a gum content by the copper dish test of not much less than this for a period of several years without receiving complaints of gum trouble. There are other refiners, however, who look askance at gum contents of any quantity in excess of 15 mg. per 100 cc. by the copper dish test.

The length of time a gasoline may remain in storage without excessive gum formation varies with the type of gasoline from as little as one month to two years, depending upon the cracking method used to produce the gasoline, the treatment undergone and the presence or absence of substances known as antioxidants. Gum formation is much more rapid in vapor phase cracked gasoline than in the liquid phase product, if both have been given the same treatment. It has been pointed out in the literature that the rate of gum formation depends upon the following factors: Time of exposure to the atmosphere, concentration of oxygen in the atmosphere over the gasoline, the kinds and percentages of various unsaturated compounds in the gasoline, the temperature of the system, the rate of diffusion of oxygen through the gasoline, and the extent to which actinc rays or other catalyzing influences may have had access to the gasoline.

Action of Sulphuric Acid

Resin forming constituents were early discovered to be removable by sulphuric acid, which, however, also removed desirable hydrocarbons such as the normal olefins from the gasoline, and efforts were continued to find a more selective refining agent, but without outstanding success, except possibly in connection with clay treating methods used in refining vapor phase pressure distillate and endpoint gasoline. The most important clue to the solution of the gum problem came with the discovery of the relation of gum formation to oxidation. Papers by Vorhees and Eisinger, Wagner and Hyman, Mardles and Moss, and others, showed that the process was one of autocatalytic action, that the period of active oxidation was preceded by a very slow oxidation, sometimes called the "induction period," and that relatively stable olefin hydrocarbons were not immune to attack.

A committee of the American Society for Testing Materials has been appointed to study the problem of gum in gasoline. In a preliminary report it has pointed out that perhaps the most important phase of the subject is that of gum stability, as indicative of the length of time which gasoline can be stored before it develops the maximum tolerable amount of gum. Much work remains to be done, however, before a satisfactory specification can be set up which will indicate whether a gasoline is sufficiently stable to be marketed or stored with safety or whether it must be reprocessed to increase its stability. The great advance which has been made in cracking operations emphasizes the necessity for arriving at official testing methods and evolving authoritative pronouncements backed by results of actual tests of gum-containing gasolines in automobile engines under conditions met by the consumer.

Government's Position

Those who contend that the early acceptance of the copper dish test is responsible for the low tolerance set up in respect to gum content, present, as an example of what misunderstanding of the gum problem may lead to, the U. S. Army specifications on domestic and fighting grades of aviation gasoline. While the antiknock value of the domestic avintion grade must be equal to or better than that of a mixture of 58 parts of 2-2-4 trimethyl pentane (iso-octane) and 42 parts of normal heptane, the gum content by the copper dish test must be less than 3 mg. per 100 cc. In the fighting grade the gasoline must have an octane number of 87 or better, and shall be subjected to an accelerated aging test at 100° C. with oxygen at about 100 pounds pressure for four hours. On evaporation of 100 milliliters of a mixture of oxidized sample and gum solvent the quantity of residue shall not exceed 10 mg.

Just as in the problem of vapor lock, in the gum problem, the petroleum technologist and the automotive engineer are both being heard as to their respective shares in the responsibility for trouble caused by resin containing motor fuels. In the investigations now being made by a subcommittee of the American Society for Testing Materials, part of the blame is being placed at the door of the automobile engine designer. This subcommittee has found quite early in its work that different automobile engines vary considerably in their degree of susceptibility to a "gum trouble." In tracing possible trouble factors in engine design apparently no significance attaches to the construction and location of the fuel system from the reservoir to and including the carburetor. From the carburetor outlet to the combustion chamber, however, especially in connection with the design of the manifold system and the location of the valves, variations in design among the different engines produce widely differing results in respect to trouble from gum accumulation.

How far the automobile engine designer will go toward saving petroleum refiners time and money expended in treating processes to eliminate gum depends largely upon how much difficulty the refiners have in producing antiknock, low gum gasoline. If the bulk of the gasoline of the future is as free from gum trouble as it has been in the past it is doubtful that engine designers will give much attention to adapting their machines to use the occasional high gum fuel.

The critical amount of preformed gum in motor fuel, as indicated by the A.S.T.M. road tests, is between 10 mg. and 20 mg., per 100 cc. as determined by the air jet method. In the matter of methods of determining preformed gum content the society is weighing the relative merits of the copper dish and the porcelain dish, and the steam oven, the air jet, and the flash evaporation methods. When a satisfactory method has been decided upon, an attempt will be made to set a limit on preformed gum based on the results of actual performance tests. The committee is now obtaining information of this nature in cooperation with a number of refiners.

Benzol Tests

Extensive tests have been made by the National Benzole Association of England on the effect of gum formation in benzol and benzol blends. Their results are in full accord with the work done in this country on cracked gasoline and they conclude that "the deposits found in the induction systems of internal combustion engines are due chiefly to the non-volatile resin formed during storage and already present in the motor spirits before use." They found from experimental tests that a fuel containing 25 mg. per 100 cc. of preformed gum deposited over 30 grams of carbon in the induction system per 100 gallons consumed. The satisfactory operation of a fleet of motor cars on a non-acid treated benzol blend was reported in which 121,000 gallons of fuel were consumed. The fuel was stabilized with .03 per cent of cresol and contained less than 5 mg. of preformed gum per 100 cc.

With the elimination of preformed or "pseudo gum" as their objective, the problem of the refiner becomes one of treating the cracked gasoline so that it is practically gum free when it is placed in storage, and devising means of inhibiting oxidation of the gasoline's gum forming constituents. A large number of investigators have concerned themselves

EAST TEXAS SITUATION FEATURES PROGRAM OF A.I.M.E. MEETING

The Petroleum Division of the American Institute of Mining and Metallurgical Engineers is making arrangements for an important meeting to be held in Houston, Tex., October 2 and 3 with excursion to the Sugarland oil field and the new mine of the Texas Gulf Sulphur Co. on Sunday, October 4.

Instead of two meetings this fall as originally planned, the Petroleum Division is concentrating on the Houston meeting and the tentative program indicates that the papers to be presented there will be very interesting.

The program as now arranged is as follows:

1. Geology, Development and Engineering—East Texas Oil Field, by Dr. F. H. Lahee, Sun Oil Co., Dallas, Tex.
2. Design of Flow Strings, by M. Albertson, Shell Petroleum Corp., Dallas, Tex.
3. Determination and Application of Depth Pressures in Yates Field, Texas, by Dale Nix, The California Co., Midland, Tex. Discussion by Peter P. Gregory, engineer, Yates Proration Committee, Iraan, Tex.
4. Reservoir Pressures in Hobbs, New Mexico, by R. S. Christie, Amerada Petroleum Corp., Hobbs, N. Mex.
5. Recent Development and Use of Bottom Hole Chokes, by J. S. Ross, The Southern States Co., Shreveport, La.
6. An Experimental Study of Pressure Gradient Within the Oil Sand About a High Pressure Producing Well, by Prof. L. C. Uren, University of California, Berkeley, Calif.
7. The Relation Between Gas Energy and Oil Production, by Prof. B. B. Boatright, Colorado School of Mines, Golden, Colo.
8. Advantages of Flowing Wells Through Tubing, by H. N. Marsh, General Petroleum Corp., Los Angeles, Calif.
9. Stabilizing Influences for the Petroleum Industry, by Earl Oliver, Ponca City, Okla.
10. Flowing Wells With Small Tubing, by R. R. Hawkins, The Texas Co., Tulsa, Okla.
11. Conflicting Recommendations from the Petroleum Industry, by C. V. Terrell, chairman, Texas Railway Commission, Austin, Tex.
12. Authority of the State to Regulate Production, by Fred Upchurch, assistant attorney general for Texas, Austin, Tex.
13. Salt Domes for Engineers, by Wallace E. Pratt, chief geologist, Humble Oil & Refining Co., Houston, Tex.
14. Symposium on local practices and problems.

The headquarters in Houston will be the Lamar Hotel where arrangements have been made for adequate accommodations for members of the division and their families and for the technical sessions.

with the problem of stabilizing cracked gasoline both in respect to its gum forming properties and its loss of antiknock value after long storage. Egloff, Faragher, Morrell and others have presented extensive lists of antioxidants, and technologists are busily adding to the number and effectiveness of these substances. Amines and phenols such as naphthylamine, naphthol, cresol and hydroquinone greatly reduce the rate of gum formation, even when present in a concentration of only a small fraction of 1 per cent. The quantity of gum inhibitor may be so small as to add very little to the cost of the gasoline. Futhermore, no special treating equipment is required, it being only necessary to introduce the required quantity of inhibitor into a storage tank or car containing the fresh unstable fuel. Some manufacturers are already taking advantage of this method of stabilizing their vapor phase antiknock gasoline.

Various explanations have been offered to account for the action of antioxidants in preventing oxidation when present in such minute quantities. It is known that peroxides are formed in the slow oxidation of cracked gasoline and that they have the property of speeding up the oxidation of otherwise stable gasoline, and it is also known that they react with antioxidants and are reduced by them to an inactive condition. Dumanois recently reported an experiment in which peroxides and aldehydes were obtained from the combustion of gasoline hydrocarbons under conditions of "engine knock."

A few investigators have assumed that the hydrocarbon molecules in gasoline are arranged in long chains and that the oxidation proceeds along the chain as a flame travels in a gun powder train. In some way the antioxidant molecules, it is thought, insert themselves into the chain and stop the oxidation process when it reaches them by absorbing the energy of the oxidizing agent. Whatever the mechanism of auto-oxidation of gasoline and antioxidant action may be, it appears that antioxidants are all good reducing agents, that is, they take up oxygen readily, and although the addition of such substances to prevent oxidation is something like quenching a blaze with oil, scientists are constantly coming upon peculiar situations.

OKLAHOMA CYLINDER STOCKS ADVANCE

(Continued from Page 12)

coupled with a marked improvement in the domestic and export demand for Pennsylvania grade oils, starting in June changed this condition. Pennsylvania refiners have steadily advanced their prices and have thus widened the market for western oils. Sellers report a more active market at the higher prices than they had during the period of declining prices. Buyers who had allowed their stocks to be depleted in expectation of lower prices and when the outlook changed, have rushed into the market to cover their requirements.

Gasoline and Naphtha

Several refiners reported a more active gasoline demand the first of the week. As everyone knows who has been connected with the refinery market over the past few months gasoline price trends have been dominated more than at any other time in the past by the constantly changing crude oil situation. Both buyers and sellers have devoted a large part of their time to trying to figure out what would be the next development in the crude oil supply. As a result, the improved statistical situation of the refining industry has been ignored and prices have reflected directly the constantly changing picture of the crude oil market. The past 10 days have given an excellent illustration of this situation. When East Texas fields were reopened, many buyers and sellers believed that the backbone of the recent gasoline market advance had been removed and prices would quickly drop to their July and early August levels. The fact that gasoline stocks at refineries in the United States are lower than they have been in several years with many refiners short of crude oil at their plants due to a shutdown of Oklahoma fields was ignored and tank car prices have declined rapidly.

Without attempting to predict what will happen eventually in regard to the handling of East Texas and other flush fields there is nothing to indicate at this time that crude oil prices will be allowed to drop to the 10 and 20-cent posted schedules of a few weeks ago. Efforts, which are explained elsewhere in this issue, are being made to curtail production on a national scale with the expectation that prices in the Mid-Continent can be maintained around $1 per barrel. The significance of this program from the refined market angle is that refinery operators are either going to get prices for their refined products in line with these crude oil costs or they will be forced to shut down their plants. This development is already under way indicated in the fact that three or four plants in Texas have been forced to shut down and some of the East Texas plants have not reopened.

Having in mind this condition, many market observers are expecting a better tone to the gasoline market in Oklahoma and other areas before the end of the week. It is anticipated that supplies will be more limited and buying will be more active.

High gravity gasoline and naphtha prices declined along with the U. S. Motor grade. Little new business was reported in the spot market.

RAILROADS USE MORE FUEL THAN AIRPLANES

(Continued from Page 95)

cluded in the seven states showing refunds for general construction, so these two percentages cannot be considered together. Although few data are available, it appears quite certain that there has been a rapid gain in the use of gasoline in all types of construction. Instead of the familiar steam roller of the past, we have today the gasoline-propelled roller, and along with its gasoline pavers, graders, concrete mixers, shovels, excavators, hoists, saws, and a number of other machines powered by gasoline which were unknown a few years ago. Not only have we changed from steam power to gasoline power, but the power which we use in construction has increased many times over what it was a few years ago.

The percentage of total gasoline consumption for marine purposes was calculated somewhat differently from the other percentages. Obviously, a percentage calculated only on the total consumption for the seven states reporting gasoline used for marine purposes could not be applied to the consumption for the United States to determine the marine consumption for the whole country. In obtaining the percentage to apply to the whole country, the inland states which have practically no marine consumption of gasoline, must also be considered. For this reason, the total consumption of all of the 14 states reporting was used as a basis for calculating the percentage to be applied to the gasoline consumption of the entire United States to determine the total amount of gasoline used for marine purposes. It is admitted that this is a rough way of determining this percentage, but an examination of the 14 states reporting will show that they are probably as representative as might be obtained. The gasoline used for marine purposes in the seven states was 0.1618 per cent of the total gasoline used in the 14 states.

This figure was checked by analyzing the total motor boat tonnage, as reported in the U. S. Department of Commerce Merchant Marine Statistics for 1930. This report indicates that 35.90 per cent of the total tonnage for the United States was represented by the seven states reporting. Since these states consumed 9,641,000 gallons for marine purposes in 1930, the total consumption would be approximately 26,855,000 gallons, or 0.1616 per cent of the total gasoline consumed in the United States. This compares closely with the 0.1618 per cent calculated above. The above figures on the tonnage of motor boats include only the larger boats, as the owners of many of the smaller boats get their gasoline in such small quantities that they do not bother about making a refund claim.

Gasoline used for aviation amounted to 0.14 per cent of the total gasoline consumption of the 12 states which had the information available. Estimates of the Aeronautics Division of the Department of Commerce indicate that about 0.19 per cent of the total gasoline consumption is used by airplanes. Whether the discrepancy is to be accounted for by an insufficient number of states reporting, or by some other reason, cannot be determined without further study.

As stated previously, only comparatively few states have made a complete analysis of their gasoline tax refunds, but the fact that several states have instituted the practice lately, and others are now installing systems for obtaining this information, indicates that they consider it to have worthwhile benefits. The information gained from the few states that make analysis of their refunds has proved of immense value both to the state itself and to the nation at large, and this value is multiplied several times when one agency, such as the Bureau of Mines, can combine them and analyze them for the whole country. If other states would also analyze their refunds, they would not only be enjoying the several benefits which they individually would gain thereby, but they would also be contributing to the information so greatly needed by one of the most important industries in the country today.

TABLE 1—GASOLINE TAX REFUNDS, 1930
(Unit 1,000 gallons)

State—	Total gasoline used	Refund or exempt	Per cent of total refund
Arizona	75,296	8,546	11.3
Arkansas	*134,045	5,500	4.1
California	1,335,567	125,121	9.4
Colorado	170,855	17,234	10.1
Connecticut	332,646	9,350	2.8
Delaware	*35,712	1,934	5.4
Idaho	61,441	6,844	11.1
Illinois	963,742	59,437	6.2
Indiana	456,177	27,208	6.0
Iowa	390,826	40,042	10.2
Kansas	360,966	*57,751	16.0
Maine	108,678	5,939	5.5
Maryland	182,128	7,348	4.0
Massachusetts	544,245	16,098	3.0
Michigan	792,777	70,314	8.9
Minnesota	381,090	35,786	9.4
Missouri	445,397	13,100	2.9
Montana	77,486	18,939	24.4
Nevada	*18,615	1,740	9.3
New Hampshire	64,746	2,259	3.5
New Jersey†	643,366	96,681	15.0
New York	1,511,999	73,416	4.8
North Carolina	*263,475	12,812	4.9
North Dakota	*113,507	47,864	42.2
Ohio	975,583	48,546	5.0
Oklahoma	*323,114	20,803	6.4
Oregon	165,898	15,470	9.3
Rhode Island	88,832	2,224	2.5
South Dakota	128,733	41,135	32.0
Texas	806,467	70,360	8.7
Virginia	229,486	12,747	5.6
Washington	271,167	23,278	8.6
West Virginia	140,398	6,432	4.6
Wisconsin	437,878	22,136	5.1
Dist. of Columbia	80,539	536	.7
Total	13,102,867	1,024,930	7.8

*Figures obtained from Bureau of Public Roads. †About one-half of exemption is for buses.

TABLE 2—TOTAL GALLONS AND PERCENTAGES OF GASOLINE USED FOR VARIOUS PURPOSES

	Number of states reporting	Gallons (*)	Per cent (*)
Agriculture	11	544,923,500	3.28
Construction	7	176,103,300	1.06
Cleaning	5	13,920,800	.08
Miscellaneous Industrial	..	112,971,000	.68
Marine	14	26,582,000	.16
Aviation	12	23,258,900	.14
Railways	7	24,920,300	.15
Highway	4	171,119,300	1.03
U. S. Government	9	46,517,900	.28
Miscellaneous	11	126,262,800	.76
Total	..	..	7.62

*For United States on basis of percentages obtained from states reporting.

DR. DUNSTAN ADVOCATES UNIFORM KNOCK TESTING

(Continued from Page 89)

fuel of reference, and the standard engine to be used for testing purposes.

At present, Doctor Dunstan stated, two standard fuels of reference have been adopted, iso-octane and normal heptane. The British committee, he said, had favored the adoption of benzol, but realized the facts that octane mixtures showed less change in detonating power with variation in temperature and that benzol is subject to auto-ignition and showed higher experimental error in testing, and so agreed to the adoption of octane as the standard. The octane number, he added, was thus numerically the percentage by volume of iso-octane in a mixture of iso-octane and normal heptane, and the octane number of a fuel was the octane number of the mixture of iso-octane and normal heptane which it matched in antiknock value.

Various types of engines used for testing purposes, Doctor Dunstan said, resulted in variance of octane numbers by as much as 10 units with the same fuel. This, he added, made imperative the adoption of a standard engine of reference with which all others used for the same purpose could be calibrated.

The engine recommended as the standard, Doctor Dunstan added, was the type known as the C.F.R. engine, developed by the American Detonation Committee, designed by Horning, and made by the Waukesha Motor Co. of Waukesha, Wis.

ISSUE UNIVERSAL OIL PATENT ON FLASHING

(Continued from Page 89)

ing out where cracking units are run to form coke.

Application for patent No. 1,820,057 was filed June 20, 1918. Patent No. 1,820,057 embraces twelve (12) claims.

Typical claims of the patent read as follows:

1. The improvement in the art of pressure distillation of petroleum oils for the purpose of producing lighter products by pyrogenesis, which consists in maintaining a considerable body of said oil under cracking conditions of temperature and pressure, continuously withdrawing oil from the said body, releasing the pressure from the withdrawn oil while the latter is in a heated condition, whereby its lighter fractions will distill off, collecting such lighter fractions and returning them to the oil body for further cracking therein.

9. An improvement in the art of pressure distillation of petroleum oils for the purpose of producing lighter products by pyrogenesis, which consists in maintaining a body of said oil under cracking conditions of temperature and pressure, in continuously withdrawing oil from said body, releasing the pressure from the withdrawn oil while the latter is in a heated condition whereby its lighter fractions will distill off, collecting said lighter fractions and returning them to the oil body for further cracking therein.

EVASION OF GASOLINE TAX IS INCREASING

(Continued from Page 89)

where the tax was low and that bootlegging increased proportionately and became more difficult to eliminate as the tax increased. Attention was called to the increasing percentage of collections in Missouri, where the rate is 2 cents, and decreasing collections in states where it is higher. Tax exemptions followed the same trend and exemptions allowed by law were furnishing a way for evasions.

Judge Hill's address and the discussion was followed by an address by Frank M. Clark, special deputy oil inspector for Kansas on "Delinquent Gasoline Tax Collections." At the Thursday morning session E. B. Swanson, chief economist, Division of Petroleum Economics, U. S. Department of Agriculture, was unable to be present and his joint paper with H. A. Breakey, "Gasoline Tax Refund as a Source of Economic Information," was read by H. P. Rue, supervising engineer of the U. S. Bureau of Mines at Laramie, Wyo.

Ysmael M. Vazouez, Mexican consul, next addressed the conference on "Highways of Mexico" and was followed by Walter T. Griffin, assistant attorney general of Kansas, who spoke on "Recent Court Decisions Affecting Gasoline Tax and Oil Inspection Laws." The morning program was concluded with an address by Walter M. Miller, chief oil inspector

Ross-Meehan Foundries

Manufacturers—

RIVER CLAMPS a Specialty

Williamson Multispeed Winch for Oil Fields
Williamson Drum Units
Electric Steel Castings, Electrically Annealed
"Certified" Malleable Iron Castings
"Meehanite Metal" Castings
Gray Iron Castings
Special Analyses Castings for—
Oil Producers and Refiners

Chattanooga, Tennessee, U.S.A.

The American Well Works manufactures a complete line of oil well pumping units. They are made in a wide variety of sizes permitting a length of stroke of from twelve to fifty inches. All gears are enclosed and run in a bath of oil. Used throughout the oil fields of the world. Catalogs and engineering data upon request.

C. S. CARTER, Sales Representative
711 Thompson Bldg., Tulsa, Okla.
D. V. MANN, Sales Representative
1311 Kirby Bldg., Dallas, Texas

THE AMERICAN WELL WORKS
General Offices AURORA, ILLINOIS and Factory

National Airoil Burners

Oil Burners and Gas Burners for every industrial purpose: Steam atomizing Burners, Motor-driven Rotary Burners, Low Pressure Air Burners, Gas Burners, Combination Gas and Oil Burners, Fuel Oil Pump Sets, Fuel Oil Strainers. Engineering advice, design and supervision of complete oil or gas burning systems for every industrial purpose.

NATIONAL AIROIL BURNER COMPANY
Oil Burners, Gas Burners and Furnace Equipment
Offices and Salesrooms: 1327 Girard Ave.
Factory: S.W. Cor. 9th & Thompson Sts., Philadelphia

QUALITY SPEED RESPONSIBILITY

Pipe Line Contractors
Welding Engineers

SMITH BROTHERS CONSTRUCTION CORP.
(Texas)
KANSAS CITY
OMAHA DALLAS

Change of Address

Always give your old address when notifying us of your new.

The OIL and GAS JOURNAL
PRODUCING REFINING ENGINEERING MARKETING
TULSA, OKLA.

of Illinois, on "Administration Problems of Oil Inspection Departments."

The program for the remainder of the conference included reports of committees, discussions of papers presented and the election of officers. Numerous entertainment features were provided for the guests including mountain trips, a reception for the ladies, and a banquet.

James Duce, state oil inspector for Colorado, was elected president; Benjamin Eynon, of Pennsylvania, was made vice president; E. D. Graham, of Oklahoma, secretary, and J. C. Colton, of Illinois, was chosen treasurer.

Twelve regional vice presidents were elected, the states in each region being chosen for grouping as to tax problems rather than geography. The regional vice presidents elected are: Henry Long, Massachusetts, New England. Frank J. Ryan, New York, Eastern. C. F. Jayes, Jr., Virginia, Middle Atlantic; W. G. Query, South Carolina, South Atlantic; Carl C. White, Mississippi, Middle Gulf; H. V. Bird, Oklahoma, Southwestern; Floyd Williamson, Indiana, East Central; Henry R. Chase, Minnesota, West Central; Seth G. Wells, Kansas, Middle West; Adolph Hill, New Mexico, South Rocky Mountain; T. F. Cooms, Utah, North Rocky Mountain, and Charles R. Maybury, Washington, Pacific.

A large exhibit of equipment was made by manufacturers, jobbers and dealers.

INFORMATION NEEDED TO MARKET PRODUCTS

(Continued from Page 95)

ditions and thus surmount to a great extent the difficulties which have been defailed in the above.

"Balanced oils, maintenance of supreme quality and continuous improvements perfectly in step with the modern trend of automotive construction are essential if the oils are to accompany expeditions to polar regions, airships around the world, and satisfy the demands of consumers in some 56 countries of the world."

TANK WAGON CHANGES

(Continued from Page 94)

tion prices were advanced in Fort Smith to 16½ and 17½ cents and in Little Rock to 17½ and 18½ cents.

Standard Oil Co. of Louisiana advanced the gasoline tank wagon and station prices throughout its territory September 8. On that date the prices were posted at 16 and 17 cents in New Orleans but on September 10 were reduced to 15½ cents each.

Atlantic Refining Co. advanced the gasoline station price in Philadelphia to 11 cents net September 10. On September 3 advances were posted in the gasoline tank wagon and station prices in Boston, Springfield, Worcester, Fall River, Providence, Hartford and New Haven as shown in the accompanying table.

CRUDE OIL PRICE CHANGES

(Continued from Page 94)

ter Pipe Co. advanced Bradford and Allegany crudes 15 cents per barrel and the Pure Oil Co. advanced Cabin Creek, Kelly's Creek and Bradford Hollow, all in West Virginia, 15 cents per barrel.

The Panola Pipe Line Co., which buys oil in East Texas, advanced its price to 68 cents per barrel effective August 17.

GULF COAST MARKET

HOUSTON, Tex., Sept. 14.—The uncertain situation which still prevails over the outcome of East Texas production continued to dominate refinery markets on the Gulf Coast which have been at a standstill the past week so far as price structure is concerned. Reports of a weaker market in North Texas so far have not been reflected directly on the Gulf Coast, although gasoline has been easily available. However, sellers are not pushing sales and are making few concessions under prevailing market quotations. Gas oils are firm, reflecting the limited supply and approaching burner oil season. Neutral oils are steady but with no great amount of trading, while fuel oils were inactive.

REVISED SPECIFICATIONS PUBLISHED BY THE A.P.I.

Several new editions of American Petroleum Institute specifications for various oil industry equipment, as recently revised, have been publisehd. They include: "A.P.I. Standards No. 9-A, Eighth Edition, July, 1931, A.P.I. Specifications for Wire Rope." This edition incorporates changes adopted at Chicago in November, 1930, previously published as Supplement No. 1, Seventh Edition, and supersedes and replaces all previous editions and supplements.

"A.P.I. Standards, No. 4, Fifth Edition, July, 1931, A.P.I. Specifications for Standard Rigs and Derricks." This edition incorporates changes adopted at Chicago in November, 1930, and at Dallas in June, 1931, and supersedes and replaces all previous editions and supplements.

"A.P.I. Standards No. 12-B, Second Edition, July, 1931, A.P.I. Dimensional Specifications for Standard Bolted Tanks." This edition incorporates changes adopted at Dallas in June, 1931.

Publication has been made also of "Supplement No. 2, July, 1931, Third Edition, A.P.I. Specifications for Standard Tanks with Riveted Shells," which supersedes and replaces "Supplement No. 1" published last March. It contains the same material as in the first supplement as approved at Chicago in November, 1930, suggested procedure on welding bottoms, but in addition presents comments and further suggestions on welding bottoms as presented at Dallas last June.

Poster No. 9, giving the recommendations of the institute's derrick committee on the care and use of derricks, also has been published.

Copies of booklets and poster may be obtained from the institute headquarters at New York, or the office of the institute's division of production, 1508 Kirby Building, Dallas, Tex.

Late Fields

(Continued from Page 24)

Goodrich Pool, where the company has four completed wells. The top of the Simpson was found to be lower than the same company's No. 1 Westerfield, three locations to the south, which made 40 bbls. a day when completed in the spring of 1929.

In Ford County the deepest test in the State is drilling. Carter Oil Co.'s No. 1 Everett, C NE Section 22-29-21w, was rotating at 5,775 feet with nothing showing. The top of the Mississippi lime was found at 5,268 feet. It is the only test the Carter Oil Co. is drilling in Kansas.

Swaim Oil Co.'s No. 1 Taylor, C NW Section 21-25-24w, Ford County wildcat, was shut down at 5,105 feet, waiting for plans to resume drilling operations.

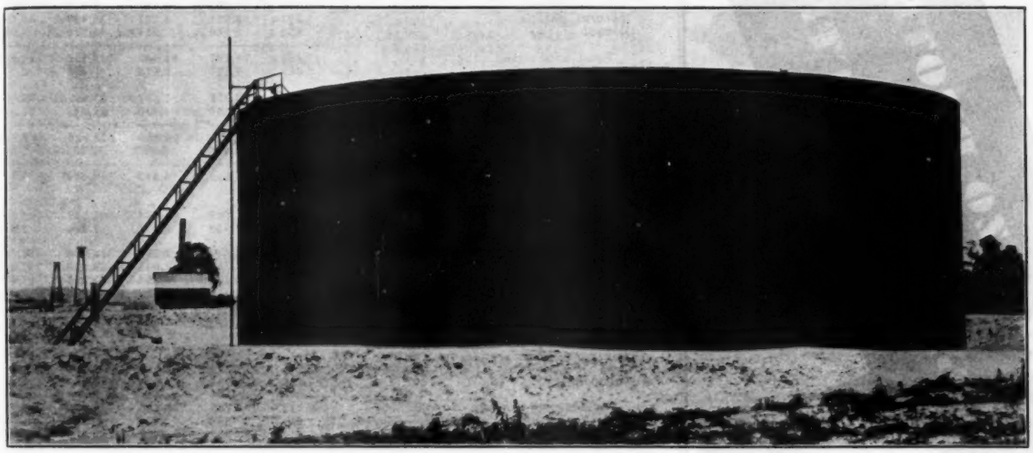
ALBERT SCHEG DEAD

LOS ANGELES, Calif., Sept. 12.—Albert Scheg, general manager of the California Oil World, died of heart trouble in Los Angeles September 11.

LEGAL

Notice of sale of Oil and Gas Lease, Department of the Interior, United States Land Office, Salt Lake City, Utah, Aug. 14, 1931. Notice is given that oil and gas lease on the following described lands in the Virgin oil field, Washington County, Utah, is offered for sale under Section 17 of the act of February 25, 1920 (41 Stat. 437), at the royalty rates and in accordance with the drilling requirements fixed in the standard lease form, copy of which may be procured from the Commissioner of the General Land Office: T. 41 S., R. 13 W., Sec. 14, S½ NE¼, N½ NW¼, SE¼ NW¼, 200 acres. The sale will be held at this office at 10:00 a.m. on September 21, 1931. The successful bidder must deposit on the date of the sale with the Register of the Salt Lake City Land Office, certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease required by Sec. 15 of the oil and gas regulations. Bidders are warned against violation of the provisions of Sec. 59, U. S. Criminal Code, approved March 4, 1909, prohibiting any unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Ell F. Taylor, Register.

PITTSBURGH DES MOINES



Store East Texas Oil for BETTER PRICES!

Here's an 80,000-barrel "Pittsburgh-Des Moines" storage tank (just erected) that's giving yeoman service at Kilgore, Texas, during the present disrupted state of the crude market.

Thirty-eight years' fabricating experience—combined with modern plants at Des Moines and Pittsburgh—allow "Pittsburgh-Des Moines" to supply urgent steel storage needs promptly with accurate work and skilled erection.

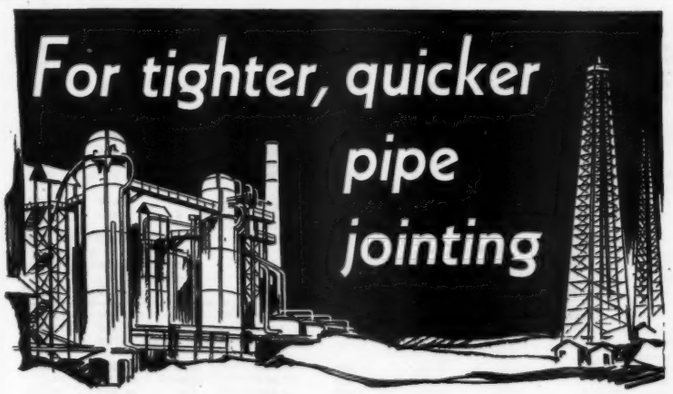
Phone, wire or write your requirements to our nearest office today.

Pittsburgh-Des Moines Steel Company

3486 Neville Island, Pittsburgh, Pa. — New York, San Francisco

1291 Praetorian Bldg., Dallas, Texas — Seattle

987 Tuttle St., Des Moines, Ia. — Chicago, Atlanta



. . . . IN field and refinery . . . anywhere along the line . . . on tank car and tanker . . . in screw or flanged pipe . . . nothing beats Dixon's Graphite Pipe Seal.

Proof against heat, pressure, suction and vibration. Stands any petroleum product, hot or cold, gas or liquid.

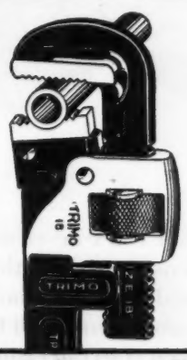
Easy to use—just mix with water. Graphite in it—Flake Graphite—Dixon's Flake Graphite.

JOSEPH DIXON CRUCIBLE COMPANY

Established 1827

Jersey City New Jersey

DIXON'S GRAPHITE SEAL



Strength - Safety

TRIMO's leadership in the oil fields is based on no trick claims, no flash in the pan wave of popularity.

Strength and safety have made TRIMO first choice. The handle is drop forged not cast — and heat treating gives the extra toughness to stand terrific strain.

TRIMO is made throughout by a company pledged for over forty years to fine tool making.

TRIMONT MFG. CO., INC., Roxbury (Boston), Mass.

TRIMO

TRIMO Pipe Wrench

D5527

BULL ROPE friction can't be eliminated entirely—but the wear and expense caused by this enemy of efficiency and economy can be reduced to a minimum!

Use Plymouth "Bronzo" Manila Bull Ropes. You will see the difference soon after you start operations. For the "Bronzo" lubricating treatment now given to Plymouth Manila Bull Ropes performs its function perfectly—it does reduce friction!

This special "Bronzo" treatment has been added to the process of manufacture at *no added cost to you!* Therefore Plymouth Manila Bull Rope gives you longer and better service for your money—service that you will find it difficult to match.

PLYMOUTH CORDAGE CO.
North Plymouth, Mass.
OIL WELL SUPPLY CO., *Distributors.* Stores in All Oil Fields

PLYMOUTH

"Bronzo" Manila Bull Rope

"the rope you can trust"

REPORT OF THE BUREAU OF MINES FOR THE MONTH OF JULY, 1931

SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

NEW SUPPLY:	July, 1931	June, 1931	July, 1930	Jan.-July, 1931	Jan.-July, 1930
Domestic production:					
Crude petroleum	77,961	75,116	76,564	499,375	542,580
Daily average	2,515	2,504	2,469	2,356	2,559
Natural gasoline	3,521	3,521	4,231	26,499	30,683
Benzol	153	160	224	1,236	1,697
Total production	81,635	78,797	81,009	527,110	574,960
Daily average	2,633	2,627	2,613	2,486	2,712
Imports:					
Crude petroleum	3,588	3,978	5,877	29,097	37,007
Refined products	3,435	2,396	4,040	22,719	25,627
Total new supply, all oils	88,658	85,171	90,926	578,926	637,594
Daily average	2,860	2,839	2,933	2,731	3,008
Increase in stocks, all oils	*3,415	*3,592	*4,442	*16,865	3,721
DEMAND:					
Total demand	92,073	88,763	95,368	595,791	633,873
Daily average	2,970	2,959	3,076	2,810	2,990
Exports:					
Crude petroleum	2,621	2,544	1,973	14,474	14,067
Refined products	9,135	7,753	11,041	60,213	82,332
Domestic demand	80,317	78,466	82,354	521,104	537,474
Daily average	2,591	2,616	2,657	2,458	2,535
Excess of daily average domestic production over domestic demand	42	11	†44	28	177
STOCKS (end of month):					
Crude petroleum:					
East of California	352,216	353,710	384,514	352,216	384,514
California‡	137,719	139,058	145,621	137,719	145,621
Total crude	489,935	492,768	530,135	489,935	530,135
Natural gasoline at plants	855	860	741	855	741
Refined products	158,415	158,992	162,011	158,415	162,011
GRAND TOTAL STOCKS, ALL OILS	649,205	652,620	692,887	649,205	692,887
Days' supply	219	221	235	231	232
Bunker oil (included above in domestic demand)	3,839	4,053	4,216	27,054	29,613

*Decrease. †Deficiency. ‡Includes residual fuel oils.

PRODUCTION OF CRUDE PETROLEUM BY STATES

(Thousands of barrels of 42 U. S. gallons)

	July, 1931		June, 1931		Jan.-July,	Jan.-July,
	Total	Daily av.	Total	Daily av.	1931	1930
Arkansas	1,136	37	1,295	43	9,517	11,754
California:						
Kettleman Hills	2,246	73	1,751	58	8,218	2,901
Long Beach	2,416	78	2,399	80	18,443	21,516
Santa Fe Springs	1,964	63	1,964	65	14,732	39,401
Rest of State	9,467	305	9,527	318	70,376	83,393
Total California	16,093	519	15,641	521	111,769	137,205
Colorado	134	4	138	5	930	990
Illinois	461	15	457	15	2,835	3,571
Indiana:						
Southwestern	72	2	75	3	472	578
Northeastern	2	....	3	....	23	32
Total Indiana	74	2	78	3	495	610
Kansas	2,887	93	3,103	104	21,831	24,836
Kentucky	481	15	486	16	3,653	4,456
Louisiana:						
Gulf Coast	637	21	644	21	5,352	4,457
Rest of State	920	29	1,050	35	7,908	8,442
Total Louisiana	1,557	50	1,694	56	13,260	12,899
Michigan	347	11	210	7	1,838	2,357
Montana	234	8	251	8	1,746	1,796
New Mexico	1,301	42	1,290	43	8,641	4,043
New York	275	9	*286	*9	1,922	2,385
Ohio:						
Central and Eastern	313	10	364	12	2,556	3,156
Northwestern	97	3	100	4	667	808
Total Ohio	410	13	464	16	3,223	3,964
Oklahoma:						
Oklahoma City	4,875	157	5,755	192	31,690	19,783
Seminole	4,231	137	4,379	146	31,843	52,002
Rest of State	7,098	229	7,576	252	53,117	62,973
Total Oklahoma	16,207	523	17,710	590	116,650	134,758
Pennsylvania	927	30	*927	*31	6,403	8,172
Tennessee	1	....	....	....	5	9
Texas:						
Gulf Coast	3,874	125	4,005	134	30,235	36,846
East Texas	16,099	519	10,657	355	47,498	....
West Texas	6,258	202	6,481	216	48,417	67,621
Rest of State	7,606	246	8,302	277	56,874	70,686
Total Texas	33,837	1,092	29,445	982	183,024	175,153
West Virginia	365	12	380	13	2,595	3,209
Wyoming:						
Salt Creek	743	24	741	25	5,371	6,228
Rest of State	491	16	520	17	3,666	4,185
Total Wyoming	1,234	40	1,261	42	9,037	10,413
United States Total	77,961	2,515	75,116	2,504	499,375	542,580

*Revised.

PRODUCTION OF CRUDE PETROLEUM BY FIELDS, WITH CLASSIFICATION BY GRAVITY

(Thousands of barrels of 42 U. S. gallons)

FIELD:	July, 1931		June, 1931		Jan.-July,	Jan.-July,
	Total	Daily av.	Total	Daily av.	1931	1930
Appalachian:						
Pennsylvania Grade	1,746	56	1,778	59	12,319	15,522
Other (inc. Kentucky)	616	20	665	22	4,915	5,865
Lima-NE Ind.-Mich.	446	14	313	11	2,528	3,197
Ill.-SW Ind.	533	17	532	18	3,307	4,149
Mid-Continent:						
N. La. and Ark.	2,056	66	2,345	78	17,420	20,196
West Texas-SE New Mex.	7,516	243	7,713	257	56,756	71,317
Other (Okla., Kans., N. Tex., etc.)	42,799	1,381	39,772	1,326	242,854	230,260
Gulf Coast:						
Grade A	1,304	42	1,440	48	11,306	19,428
Grade B	3,207	104	3,209	107	24,281	21,865
Rocky Mountain	1,645	53	1,708	57	12,016	13,546
California	16,093	519	15,641	521	111,769	137,205
Total	77,961	2,515	75,116	2,504	499,375	542,580
CLASSIFICATION BY GRAVITY (approx.):						
Light crude	72,062	2,325	68,979	2,299	453,613	479,605
Heavy crude	5,899	190	6,137	205	45,762	62,975

(Continued on next page)

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons)

	July, 1931 Total	July, 1931 Daily av.	June, 1931 Total	June, 1931 Daily av.	Jan.-July, 1931	Jan.-July, 1930
CRUDE PETROLEUM:						
Runs to stills: Domestic	75,976	2,451	72,238	2,409	489,652	520,820
Foreign	3,782	122	3,949	132	28,441	35,481
Total	79,758	2,573	76,237	2,541	518,093	556,301
Imports	3,538	116	3,978	133	29,097	37,007
Exports	2,621	85	2,544	85	14,474	14,067
MOTOR FUEL: Production	38,440	1,240	37,024	1,234	250,366	261,378
Imports	1,528	49	964	32	8,561	9,899
Exports	4,473	144	3,256	109	28,372	40,502
Stocks*	40,332	.....	44,296	.....	40,332	46,077
Domestic demand	39,459	1,273	38,375	1,275	230,964	227,959
KEROSENE: Production	3,696	119	3,404	113	24,293	30,346
Imports	2	.....	2	.....	3	125
Exports	1,236	40	741	25	7,339	10,194
Stocks	6,869	....	6,521	....	6,869	8,319
Domestic demand	2,114	68	2,104	70	16,976	21,053
GAS OIL AND DISTILLATE FUELS: Production	7,341	237	7,302	243	53,038	46,286
Stocks	19,381	....	17,975	....	19,381	17,380
RESIDUAL FUEL OILS:						
Production	22,147	714	22,210	740	152,448	178,535
Stocks†	22,035	....	20,606	....	22,035	21,747
GAS OIL AND FUEL OIL:						
Production	29,488	951	29,512	984	205,486	224,821
Imports	1,886	61	1,412	47	14,053	15,383
Exports	2,698	87	2,633	88	18,033	22,919
Stocks	41,416	....	38,581	....	41,416	39,127
LUBRICANTS: Production	2,337	75	2,088	70	15,775	21,043
Imports	1	....	4	....	19	15
Exports	535	17	833	28	4,621	6,270
Stocks	9,597	....	9,763	....	9,597	9,953
Domestic demand	1,969	64	1,615	54	12,547	13,104
WAX (thousands of pounds):						
Production	37,800	1,219	34,160	1,139	259,560	353,920
Imports	2,537	82	3,509	117	18,251	17,373
Exports	17,284	558	20,391	680	152,670	156,040
Stocks	198,407	....	200,836	....	198,407	254,999
Domestic demand	25,482	822	22,245	742	159,326	149,846
COKE (short tons):						
Production	172,500	5,565	179,600	5,987	1,179,100	1,090,900
Stocks	1,390,700	....	1,315,400	....	1,390,700	941,900
ASPHALT (short tons):						
Production	314,000	10,129	314,700	10,490	1,683,800	1,912,000
Stocks	349,000	....	393,300	....	349,000	310,000
ROAD OIL: Production	1,115	36	700	23	2,844	3,011
Stocks	632	....	477	....	632	384
MISCELLANEOUS: Production	1,259	41	1,115	37	6,863	4,000
Stocks	664	....	751	....	664	467

*Includes motor fuel blends held at natural gasoline plants and in gasoline pipe line systems. †East of California.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM EAST OF CALIFORNIA

(Thousands of barrels of 42 U. S. gallons)

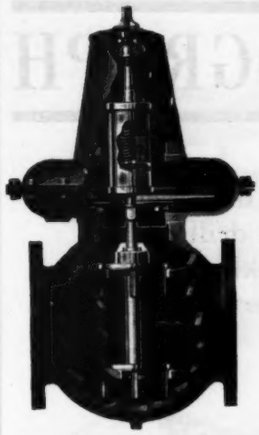
Domestic petroleum by fields of origin:	July, 1931 Total	July, 1931 Daily av.	June, 1931 Total	June, 1931 Daily av.	Jan.-July, 1931	Jan.-July, 1930
Appalachian:						
Pennsylvania grade	2,080	67	1,998	66	12,887	13,841
Other (inc. Kentucky)	696	22	772	26	4,990	5,850
Lima-NE Ind.-Mich.	315	10	455	15	2,357	2,591
Ill.-SW Ind.	482	16	854	28	3,613	4,417
Mid-Continent:						
N. La. and Ark.	2,802	90	2,792	93	20,760	20,812
W. Texas-SE N. Mex.	7,132	230	8,181	273	64,722	75,828
Other (Okla., Kans., N. Tex., etc.)	41,516	1,339	37,863	1,260	241,263	228,011
Gulf Coast:						
Grade A	2,252	73	2,269	76	15,350	20,229
Grade B	3,811	123	2,567	86	24,393	22,041
Rocky Mountain	2,006	65	2,484	81	13,581	13,780
California	5	....	....	....	5	171
Total demand	63,097	2,035	60,125	2,004	403,921	407,571
Exports	1,962	63	1,858	62	9,777	8,886
Domestic demand	61,135	1,972	58,267	1,942	394,144	398,685
Foreign petroleum	3,853	124	3,924	131	28,617	37,820
Total domestic demand east of California	64,988	2,096	62,191	2,073	422,761	436,505

STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

EAST OF CALIFORNIA: At refineries by location:	July 31, 1931	June 30, 1931	July 31, 1930
East Coast: Domestic	10,138	10,679	10,227
Foreign	3,361	3,811	4,198
Appalachian	2,225	2,296	2,977
Indiana, Illinois, Kentucky, Michigan, etc.	3,083	2,763	3,150
Oklahoma, Kansas and Missouri	5,200	5,613	5,372
Texas: Inland	1,959	1,611	2,282
Gulf Coast: Domestic	7,212	6,574	9,752
Foreign	290	195	219
Arkansas and Inland Louisiana	585	738	1,105
Louisiana Gulf Coast: Domestic	4,486	4,891	5,432
Foreign	682	592	855
Rocky Mountain	1,786	1,971	1,571
Total	41,007	41,734	47,140
At refineries by origin:			
Pennsylvania Grade	2,045	2,158	2,737
Other Appalachian (inc. Kentucky)	677	745	842
Lima-NE Indiana-Michigan	189	194	118
Illinois-SW Indiana	114	124	122
N. Louisiana and Arkansas	2,423	2,914	4,880
West Texas and SE New Mexico	3,996	3,569	5,166
Oklahoma, Kansas, N. Texas, etc.	19,075	18,475	19,047
Gulf Coast: Grade A	1,586	2,334	4,336
Grade B	4,783	4,599	3,050
Rocky Mountain	1,786	2,019	1,569
California	....	5	1
Foreign	4,333	4,598	5,272
Total	41,007	41,734	47,140
Pipe line and tank farms:			
Pennsylvania Grade	5,243	5,464	6,112
Other Appalachian (inc. Kentucky)	944	956	966
Lima-NE Indiana-Michigan	1,460	1,322	1,294
Illinois-SW Indiana	9,920	9,856	10,256
N. Louisiana and Arkansas	18,713	18,971	21,343
West Texas and SE New Mexico	38,784	38,731	48,477
Oklahoma, Kansas, N. Texas, etc.	191,591	191,110	199,039
Gulf Coast: Grade A	4,780	4,984	8,041
Grade B	10,069	10,866	11,328
Rocky Mountain	23,565	23,616	24,268
Total	305,009	305,876	331,124
Total refinery, pipe line and tank farm	346,016	347,610	378,264
Producers'	6,200	6,100	6,250
Total crude east of California	352,216	353,710	384,514
CALIFORNIA: Light	39,621	40,043	41,071
Heavy (including fuel)	98,098	99,015	104,550
Total crude (including fuel oil in California)	489,935	492,768	530,135

(Continued on next page)



A Better Automatic Flow Control Valve Vapor Gathering System

A CHANGE in pressure of a fraction of an inch water gauge . . . and the Davis Supersensitive Gas Relief Valve begins to function. This sensitive action is a necessity in successful vapor gathering systems, and is good reason for the extensive use of the Davis Valve by Phillips, Texas, Standard, Skelly, Shell, Humble, Pure, Atlantic, Carter, Marland and others.

Especially designed for the service, it allows tank vapors to pass off into the compressor suction lines, and prevents vacuum being created in the tank. It is a balanced valve, controlled from the tank side. Pressure conditions on the discharge line are negligible. Action of the valve is not affected by the rate of flow.

Consider these features: Internal oil dash pot, insuring steady, accurate operation; oil-proof diaphragm; sulphur-resistant internal parts; adjustment for changing the set pressure; operating parts enclosed by a protective metal hood, permitting use of the valve in an exposed position.

Your vapor recovery will be complete, automatic and efficient if the Davis Supersensitive Relief Valve is a part of your system.

Send for general catalog and get all the details.

Davis Regulator Company
2543 S. Washtenaw Avenue
CHICAGO, ILL.

Westcott & Greis, Inc.
Sales Engineers
TULSA LOS ANGELES DALLAS

Automatic valve makers for over fifty years

DAVIS VALVE SPECIALTIES

OGJ 9-17 Gray

SYFO CLINOGRAPH

The perfect device for the daily recording of vertical deviation in drilling Permanent Records .. Quickly made .. No danger .. Inexpensive .. Direct and Accurate ..

The presence of crookedness in a hole is not indicated by any clear-cut evidence recognizable from drilling operations — until trouble starts. Even then the major portion of the grief falls on the owner after the well has been brought in and not on the drilling contractor.

As a result well owners are today insisting that the hole be surveyed as it is drilled, making only a fixed latitude from the vertical permissible—no more. For verifying the result and course of the hole, the SYFO Clinograph affords the best check.

The SYFO Clinograph represents a radical improvement in the design and method of operation of inclination measuring instruments. Its advantages may be summarized as follows:

It affords a direct and accurate record. The record is easily obtained *without the use of dangerous acids.* The test is quickly made. The record is on paper and can be filed for reference. Ruggedly built and will operate without decrease in efficiency. Operates on wire line running through drill stem or on sand or bailing line in open hole.

Running in a SYFO Clinograph takes very little time and the result can be read immediately.

The SYFO Clinograph is not sold, but leased at nominal rates. Being made in different sizes for different depths, it is necessary for the drilling company to advise the conditions under which the surveying will be done before quotations can be made.

Write for Complete Descriptive Literature and Rates.

Sperry-Sun Well Surveying Co.

1608 Walnut Street, Philadelphia, Pa.

DALLAS, TEXAS: 1501 Caruth Street
HOUSTON, TEXAS: 1417 Esperson Building
TULSA, OKLAHOMA: 402 Petroleum Building
LOS ANGELES, CALIF.: 415 Petroleum Securities Building
TYLER, TEXAS: Bell Building
CALGARY, ALBERTA, CAN.: Room 1, Central Block

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN THE UNITED STATES*
(Thousands of barrels of 42 U. S. gallons)

	July, 1931	June, 1931	July, 1930	Jan.-July, 1931	Jan.-July, 1930
Gasoline	921	1,234	2,234	8,411	12,046
Natural gasoline	216	....	....	1,021	....
Kerosene	28	48	....	164	180
Gas oil	....	95	524	957	2,245
Diesel oil	107	....	....	107	208
Fuel oil	....	....	3	2	23
Lubricants	10	15	8	63	107
Asphalt	1	2	1	11	12
Total	1,283	1,394	2,770	10,736	14,821

*Compiled by E. T. Knudsen of the San Francisco Office of the Bureau of Mines.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	July, 1931	June, 1931	July, 1930	Jan.-July, 1931	Jan.-July, 1930
Oil	599	603	1,051	3,529	7,751
Gas	160	121	239	1,213	1,512
Dry	255	305	565	2,527	3,957
Total	1,014	1,029	1,855	7,279	13,220

*From The Oil and Gas Journal and California Office of the American Petroleum Institute.

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, JULY, 1931*

	Completions: Oil	Gas	Dry	Total initial production (bbls.)	Average initial production (bbls.)	Drilling July 31
Texas	457	12	118	118,300	300	901
East Texas	407	1	19	100,100	200	485
Gulf Coast	16	3	17	5,200	300	47
West Texas	11	1	9	9,400	855	85
California	18	..	10	63,400	3,500	180
Kettleman Hills	5	..	..	56,000	11,200	8
Long Beach	2	..	1	300	100	17
Playa del Rey	3	..	..	900	300	3
Oklahoma	33	14	32	124,200	3,800	240
Oklahoma County	17	..	..	106,400	6,300	70
Pottawatomie and Seminole Counties	6	..	..	8,600	1,400	4
New Mexico	..	1	..	....	....	49
Lea County (Hobbs)	..	1	..	....	....	4
Other states	91	133	95	13,800	200	1,009
Total United States	599	160	255	319,700	500	2,379

*From The Oil and Gas Journal and California Office of the American Petroleum Institute.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM AND MAJOR REFINED PRODUCTS*
(Thousands of barrels of 42 U. S. gallons)

	July, 1931 Total	July, 1931 Daily av.	June, 1931 Total	June, 1931 Daily av.	Jan.-July, 1931	Jan.-July, 1930
CRUDE PETROLEUM:						
Imports	3,588	116	3,978	133	29,097	37,007
From Mexico	827	27	1,300	43	4,993	5,225
From Venezuela	2,195	71	1,943	65	15,743	23,199
From Colombia	504	16	611	21	7,395	8,151
From other countries	62	2	124	4	966	1,432
Exports:						
Domestic crude oil	2,621	85	2,544	85	14,474	14,067
To Canada	2,092	68	1,901	63	11,249	11,058
To other countries	529	17	643	22	3,225	3,008
Shipments	....	....	....	....	....	1
Foreign crude oil	....	....	....	....	....	....
REFINED PRODUCTS:						
Gasoline:						
Imports	1,528	49	964	32	8,561	9,899
Exports†	4,473	144	3,265	109	28,372	40,502
To United Kingdom	1,109	36	1,197	40	8,906	12,329
To France	592	19	441	15	3,466	5,734
To Canada	317	10	223	7	1,763	2,316
To other countries	2,291	74	1,306	44	13,347	19,414
Shipments	164	5	98	3	890	709
Kerosene:						
Exports	1,236	40	741	25	7,339	10,194
To China	229	7	189	6	1,054	1,592
To United Kingdom	377	12	138	5	1,740	1,516
To other countries	608	20	393	13	4,438	6,906
Shipments	22	1	21	1	107	180
Gas oil and fuel oil:						
Imports	1,886	61	1,412	47	14,053	15,383
Exports	2,698	87	2,633	88	18,033	22,919
To Chile	194	6	207	7	1,928	2,658
To Panama	272	9	181	6	1,798	1,749
To other countries	2,067	67	2,073	69	12,585	16,084
Shipments	165	5	172	6	1,742	2,428
Lubricants:						
Exports	535	17	833	28	4,621	6,270
To United Kingdom	120	4	179	6	946	1,238
To France	76	2	103	4	748	938
To other countries	330	11	543	18	2,877	4,041
Shipments	9	....	8	....	50	53
Wax (thousands of lbs.):						
Imports	2,537	82	3,509	117	18,251	17,373
Exports	17,284	558	20,391	680	152,670	156,040
To United Kingdom	3,871	125	3,641	121	33,683	39,846
To Italy	709	23	1,272	43	25,316	19,836
To other countries	12,703	410	15,476	516	93,655	96,343
Shipments	1	....	2	....	16	15

*From Bureau of Foreign and Domestic Commerce. †Includes benzol—143,000 bbls. in July.

GASOLINE PRODUCTION BY THE VARIOUS METHODS, JULY, 1931
(Thousands of barrels of 42 U. S. gallons)

	Straightrun Total	Straightrun %	Cracked Total	Cracked %	Nat. gasoline Total	Nat. gasoline %	Grand total
East Coast	2,477	42	3,387	57	51	1	5,915
Appalachian	826	54	657	43	44	3	1,527
Ind., Ill., Ky., etc.	2,970	50	2,757	47	184	3	5,911
Okla., Kans., Mo.	3,354	57	2,012	34	505	9	5,872
Texas	4,444	47	4,137	44	848	9	9,429
Louisiana and Arkansas	1,187	51	985	42	118	7	2,320
Rocky Mountain	529	49	454	42	101	9	1,084
California	3,756	65	1,249	21	810	14	5,815
Total	19,543	52	15,639	41	2,691	7	37,873
Texas Gulf Coast	2,478	39	3,291	52	577	9	6,346
Louisiana Gulf Coast	718	48	705	47	72	5	1,495

PRODUCTION OF MOTOR FUEL
(Thousands of barrels of 42 U. S. gallons)

	July, 1931 Total	July, 1931 Daily av.	June, 1931 Total	June, 1931 Daily av.	Jan.-July, 1931	Jan.-July, 1930
Straightrun gasoline	19,543	630	19,454	649	126,379	137,206
Cracked gasoline	15,639	505	14,261	475	99,371	94,197
Natural gasoline:						
Blended at refineries	2,586	83	2,802	93	20,383	25,414
Blended at plants*	14	1	15	1	96	167
Run through pipe lines†	105	3	107	4	601	1,247
Jobbers, exports, etc.	400	13	225	7	2,300	1,450
Benzol produced‡	153	5	160	5	1,236	1,697
TOTAL MOTOR FUEL	38,440	1,240	37,024	1,234	250,366	261,378

*East of California. †To refineries in California. ‡Estimated

(Continued on next page)

RUNS TO STILLS AND OUTPUT OF REFINERIES, JULY, 1931

(Thousands of barrels of 42 U. S. gallons)

INPUT—	Crude oil: Domestic	Crude oil: Foreign	Crude oil: Total	Unfinished oils rerun	Natural gasoline	Total input
East Coast	10,843	3,640	14,483	1,182	51	15,716
Appalachian	3,276	....	3,276	197	44	3,517
Ind., Ill., Ky., etc.	10,216	....	10,216	223	184	10,623
Okla., Kans., Mo.	10,393	....	10,393	265	505	11,163
Texas	18,767	50	18,817	851	848	20,516
Louisiana and Arkansas	5,754	92	5,846	375	148	6,369
Rocky Mountain	1,807	....	1,807	376	101	2,284
California	14,920	....	14,920	144	*810	15,874
United States Total	75,976	3,782	79,758	3,613	2,691	86,062
Texas Gulf Coast	12,759	50	12,809	813	577	14,199
Louisiana Gulf Coast	3,683	92	3,775	44	72	3,891

OUTPUT—	Gasoline	Kerosene	Gas oils and fuel oils: Gas oil and distillate fuels	Gas oils and fuel oils: Residual fuel oils	Gas oils and fuel oils: Total	Lubricants	Wax (thousands of lbs.)
East Coast	5,915	717	1,312	4,533	5,845	732	13,720
Appalachian	1,527	327	250	315	565	427	7,840
Ind., Ill., Ky., etc.	5,911	322	864	1,167	2,031	239	3,080
Okla., Kans., Mo.	5,872	726	1,104	2,013	3,117	225	2,240
Texas	9,429	871	1,413	5,680	7,093	455	3,920
La. and Ark.	3,320	263	498	1,933	2,431	38	4,760
Rocky Mountain	1,084	103	123	293	416	28	2,240
California	5,815	367	1,777	6,213	7,990	193	....
U. S. Total	37,873	3,696	7,341	22,147	29,488	2,337	37,800
Texas Gulf Coast	6,346	645	1,116	3,520	4,636	450	3,360
La. Gulf Coast	1,495	205	315	1,164	1,479	22	4,760

OUTPUT (Cont'd.)	Coke (tons)	Asphalt (tons)	Other finished products: Road oil	Other finished products: Miscellaneous	Other finished products: Total	Unfinished products	Storage
East Coast	11,000	152,900	56	24	80	671	810
Appalachian	2,900	15,800	40	32	72	297	172
Ind., Ill., Ky., etc.	62,900	44,900	618	519	1,137	250	154
Okla., Kans., Mo.	33,100	3,300	109	144	253	259	516
Texas	45,500	17,500	9	59	68	1,132	1,126
La. and Ark.	5,900	24,400	30	113	143	709	284
Rocky Mountain	11,200	300	142	37	179	332	75
California	....	54,900	111	331	442	347	418
U. S. Total	172,500	314,000	1,115	1,259	2,374	3,997	3,555
Texas Gulf Coast	33,900	17,500	9	38	47	995	799
La. Gulf Coast	5,700	15,100	14	86	100	342	119

*Includes 105,000 bbls. run through pipe lines.

SHIPMENTS OF MOTOR FUEL BY PIPE LINES

(Thousands of barrels of 42 U. S. gallons)

	July, 1931	June, 1931	Jan.-July, 1931
Motor fuel turned into lines	1,410	1,148	5,081
Motor fuel delivered from lines	1,270	713	3,906
Stocks in lines and working tanks end of month	1,375	1,235	1,375

PRODUCTION AND DISTRIBUTION OF NATURAL GASOLINE

(Thousands of barrels of 42 U. S. gallons)

	July, 1931: Total	July, 1931: Daily av.	June, 1931: Total	June, 1931: Daily av.	Jan.-July, 1931: Total	Jan.-July, 1931: Daily av.
Production	3,521	113	3,521	117	26,499	125
Decreases in all stocks	220	7	127	4	....	....
Total	3,741	120	3,648	121	26,499	125
Blended at refineries	2,586	83	2,802	93	20,383	96
Run through pipe lines in Calif.	105	3	107	4	601	3
Blended at plants east of Calif.	14	1	15	1	96	1
Jobbers, exports, etc.	400	13	225	7	2,300	11
Increase in all stocks	....	....	....	....	478	2
Balance	636	20	499	16	2,641	12
Total	3,741	120	3,648	121	26,499	125

STOCKS HELD BY REFINING COMPANIES, JULY 31, 1931*

(Thousands of barrels of 42 U. S. gallons)

	Gasoline	Kerosene	Gas oil and fuel oil: Gas oil and distillate fuels	Gas oil and fuel oil: Residual fuel oils	Gas oil and fuel oil: Total
East Coast	5,715	1,396	4,893	5,497	10,390
Appalachian	1,429	421	800	599	1,399
Ind., Ill., Ky., etc.	5,282	573	1,780	1,936	3,716
Okla., Kans., Mo.	3,013	475	3,072	3,150	6,222
Texas	6,919	1,392	3,321	8,096	11,417
Louisiana and Arkansas	999	637	619	2,179	2,798
Rocky Mountain	1,651	304	292	578	870
California	†13,940	1,671	4,604	(‡)	4,604
Total	38,948	6,869	19,381	22,035	41,416
Texas Gulf Coast	5,084	1,231	2,586	4,735	7,321
Louisiana Gulf Coast	834	590	332	1,532	1,864

	Wax (thousands of lbs.): Lubricants	Wax (thousands of lbs.): Crude scale	Wax (thousands of lbs.): Refined	Wax (thousands of lbs.): Total	Coke (tons)
East Coast	3,031	34,196	20,306	54,502	33,100
Appalachian	1,056	23,845	2,962	26,807	12,600
Ind., Ill., Ky., etc.	1,097	20,068	1,116	21,184	171,300
Okla., Kans., Mo.	685	2,940	1,867	4,807	118,800
Texas	2,229	1,424	13,571	14,995	722,000
Louisiana and Arkansas	144	48,108	1,989	50,097	99,300
Rocky Mountain	250	24,867	1,148	26,015	128,400
California	1,055	....	....	....	105,200
Total	9,597	155,448	42,959	198,407	1,390,700
Texas Gulf Coast	2,141	1,424	13,564	14,988	630,500
Louisiana Gulf Coast	122	48,108	1,989	50,097	99,000

	Asphalt (tons)	Other finished products: Road oil	Other finished products: Miscellaneous	Other finished products: Total	Natural gasoline	Unfinished oils: Other	Unfinished oils: Total
East Coast	119,400	36	59	95	290	9,285	9,575
Appalachian	22,000	37	50	87	8	1,657	1,665
Ind., Ill., Ky., etc.	78,000	307	200	507	22	5,220	5,252
Oklahoma, Kans., Mo.	4,300	45	23	68	28	3,234	3,262
Texas	7,400	7	10	17	111	15,010	15,121
Louisiana and Ark.	59,800	12	10	22	20	2,986	3,006
Rocky Mountain	3,400	114	38	152	....	1,755	1,755
California	54,700	74	274	348	1,512	‡8,035	9,547
Total	349,000	632	664	1,296	2,001	47,182	49,183
Texas Gulf Coast	7,400	7	3	10	100	13,570	13,670
Louisiana Gulf Coast	35,000	8	5	13	7	2,307	2,314

*Stocks east of California represent inventories held by refining companies at or near refineries; California stocks represent inventories held by refining companies on the Pacific Coast of the United States at refineries, at or in transit to water terminals and bulk distributing stations. †Includes 336,000 bbls. engine distillate. ‡Included with heavy crude. ¶Includes 2,612,000 bbls. tops.

YOUR BEST BET—

—for threading 1 to 2 inch pipe is the "TOLEDO" No. 1A threading device.

This sturdy little threader sets the standard for 1 to 2 inch threaders, and although imitated has never been equaled. It is today the most widely known and used pipe tool on the market.

You will insure pipe threading satisfaction by using a genuine "TOLEDO" 1A trade-marked tool. A copy of our complete catalogue on request.

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO
NEW YORK OFFICE AND DISPLAY ROOM: 72 LAFAYETTE ST.

"TOLEDO"
THE STANDARD PIPE TOOL

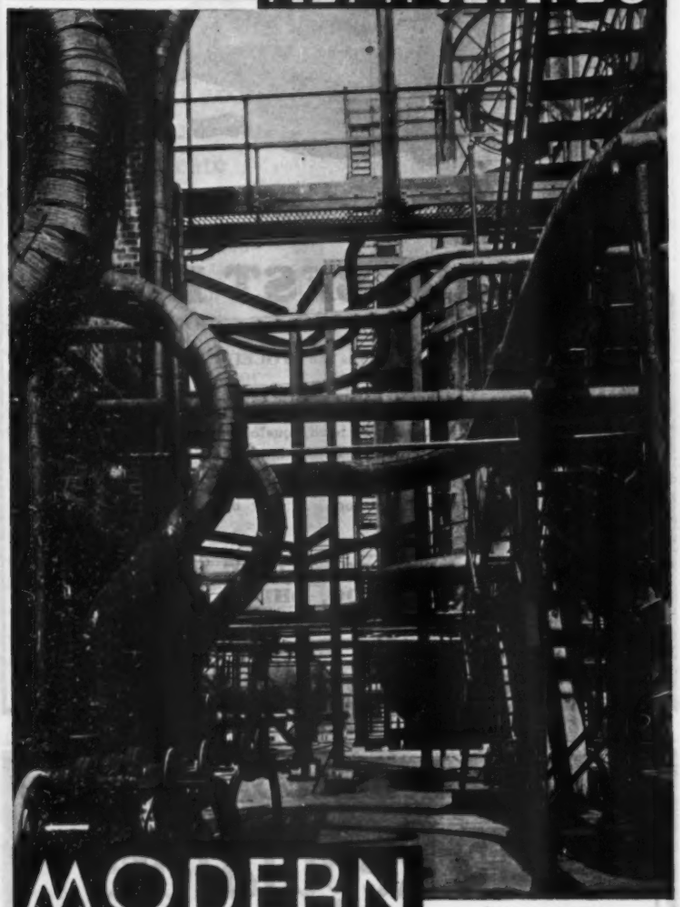
They Believe in *USING*
C-F Regulators
as well as in SELLING them

New gas-fired billet furnace recently installed by The Surface Combustion Co. for National Supply Co. at Toledo, Ohio. Note C-F regulator at upper left.

FOR many years distributors of Chaplin-Fulton Regulators, National Supply Company knows that no matter how new and improved the process might be, Chaplin-Fulton keeps pace with industrial developments by supplying regulators that will meet new demands. They sell C-F and they use C-F for their own regulation requirements.

The Chaplin-Fulton Mfg. Co.
28-40 Penn Avenue, Pittsburgh, Pa.

MODERN REFINERIES



MODERN PIPING

Modern motors mean modern motor fuel, and to meet these new and exacting demands means new and larger and more modern refineries. Which in turn brings one to the subject of MODERN PIPING SERVICE, and the ability of Power Piping Company to serve the interests of the most prominent refineries throughout the country. Experience, personnel, engineering help of the finest caliber, responsibility and integrity—in short, "put it up to POWER PIPING".

POWER PIPING CO., Pittsburgh

O-3-H

Put It Up To Power Piping

CENTRAL WEST FIELDS

(Continued from Page 48)

Boone County—N. C. Day has leased north of Zionsville and hopes to drill a test in that area.

Laporte County—A showing of gas was reported in the John Siddles farm No. 1 drilled by H. J. Hauck and others in Section 4, Lincoln Township, on Mill Creek, about 15 miles southwest of South Bend. Late advice from this test is that a depth of 700 feet had been reached and the drillers say the formations are looking favorable. This test is in the northeast point of the Kankakee Valley.

Monroe County—Negotiations are under way to connect the gas field near Unionville with the artificial gas line supplying Bloomington.

Perry County—A well is said to be drilling on Deer Creek north of Cannelton. Location and owners are unknown. No. 1 Ed Cassidy, drilling by Gustave Walters in Section 4, Leopold Township, is down 1,400 feet, and will likely test the Corniferous formation. Roger E. Williams and others are drilling No. 1 Louis J. LaGrange in Section 21, Oil Township. Lane and others are drilling on the Lanman farm 1 mile south of Bristow.

Pike County—C. E. Wommer has started No. 1 Craig in the NE Section 23, Jefferson Township. He is also drilling No. 1 Simon Morgan in Section 26, Washington Township. The Eureka Oil & Gas Corp. completed a dry hole at 1,185 feet in No. 1 Sally Harmon in Section 25, Patoka Township. The Indiana Southwestern Gas Corp. is drilling No. 1 John W. Peed in the NW Section 32, Clay Township.

Rush County—C. C. Bundy is drilling a gas well for Thomas E. Innis on his farm in Section 1, Anderson Township.

St. Joseph County—Browning and others are drilling No. 1 Harry Sones in Section 29, Harris Township, at a depth of 1,893 feet. The top of the Trenton was found at about 982 feet.

Sullivan County—The fourth well on the C. L. Davis farm in Section 14, Turman Township, drilled by C. W. Scott, started at about 1 bbl. A fifth well is being drilled. H. Huntsman is still drilling on the Catherine Piety in Section 7, Turman Township. It is the first well on this farm.

Switzerland County—Although much leasing has been carried on in Switzerland County, the first well will be started by Clarence Carter on his lot in Vevay.

KENTUCKY

A spirit of optimism pervaded Owensboro oil circles following the receipt of news that the price of oil in western Kentucky had been increased to 75 cents a barrel. For the first time in recent weeks inquiries were being made about the availability of leases in the Tri-County Field of Ohio, Hancock, Daviess Counties and also in the Hart County Field. In Hart County, where wells have been completed in pools with flush production of several hundred barrels a day operators are reported to have resumed pumping.

Although the price of crude oil in western Kentucky has advanced materially in the past several weeks operators in the Owensboro Field are unwilling to pump their leases except in a few cases, it is reported. Indications are that there will not be much increase in pumping in the Owensboro territory until crude reaches the dollar mark, as the estimated cost of producing oil in this area is at least 85 cents. In the meantime, it is the consensus among oil men that the entire field would not produce more than 3,500 bbls. a day if it were opened at full head.

The oil people were greatly encouraged by a wire from O. D. Donnell, president of the Ohio Oil Co. at Findlay, Ohio, replying to a wire from Courtney Combs, secretary of the Western Kentucky Producers Association, in which Mr. Donnell assured the association that his company expected to pump only enough to satisfy royalty owners and that "if our royalty owners will agree we shall be glad to ride along with the other producers and take our chances on the market later on."

Crude oil prices that dropped to a low level of 20 cents a barrel several weeks ago, and caused cessation of pumping of all wells in the Muhlenberg County Field, have been increased to 65 cents a barrel at the wells, and pumping is again in full operation and it is reported that considerable development will be done during the fall months. At present rigs are being placed for drilling two wells. One of the new locations, under lease to Ellis & Young of Owensboro, is on the farm of Chestine Lee, adjoining the farm of Jesse Cary, a short distance south of Greenville, the county seat, where a good gas well recently was brought in. The other new location, which is under lease to the Ohio Oil Co., is on the farm of Irvin Miller, also near the Cary farm gas well. Workmen are again engaged on a fishing job at a well on land belonging to the Boggess heirs, just outside the city limits of Greenville. A string of tools was lost in this well several months ago, and a fishing job, carried on for several weeks, was stopped when oil prices went so low that pumping in the Muhlenberg Field was suspended.

Completions were few from any part of Kentucky for the week. In the Whittaker Pool, of Ohio County, Keith White and A. R. Calderwood drilling in No. 1 on the Clemmie Westerfield farm, along the Boston Road, near Panther Creek, where 20 feet of sand was found. Indications are that this well opens up a new pool as the nearest production is more than a mile away, and the oil was found in the Jett sand. The well is reported at 50 bbls. initially.

In the northern part of Barren County, in the Glasgow Field, John Denny and others report the completion of a gas well with 1,000,000 feet of gas at No. 1 on the Roger farm.

M. Hansbrough and others have just drilled in a gas well, estimated at better than 6,000,000 feet, on the Bob Harris farm, on Beaver Creek, 8 miles northeast of Burksville, Cumberland County, at a depth of 363 feet. Drilling operations will continue on a block of 1,200 acres held under lease. There was also a slight showing of oil in the well. This is one of the oldest fields in Kentucky, and there are a number of good oil and gas wells adjoining this big block of acreage held by Hansbrough and others.

Total runs made from wells served by the Illinois Pipe Line Co. in western Kentucky during the month of August were 52,653.41 bbls.

MICHIGAN

Three completions were made in the Isabella-Midland Field, central Michigan, two of which were very important as to both oil and gas. Midland County is again to the front in the new East Field, in Greendale Township, where the Pure Oil Co.'s No. 1 on the Cassidy farm, approximately three-quarters of a mile west of the Struble farm gusher which opened up the new pool and about 3 miles east of the original oil field along the division line of Isabella and Midland Counties. The Cassidy well is reported with an initial around close to 500 bbls. from the Dundee formation. This is the latest development in the new East Field, and considerable work will soon start in the new pool as well as in the territory between the new pool and the old one which reaches some distance along the division line of the two counties. The increase in crude prices has done much toward getting work started and from now on until extreme cold weather comes this field should have quite a number of new producers connected to the pipe line of the Pure company.

The next important strike was the bringing in of a large gas well by the Gas Producers, Inc., in No. 1 on the A. T. Skerritt farm, NE Section 5, Broomfield Township, Isabella County, approximately 13 miles west of Mount Pleasant, which is reported with 8,500,000 feet of gas from the Marshall formation around 1,400 feet in depth. Operators hold this development as a very important one for its extension of the field to the northwest and its large production of gas. The well was originally started by Fred Stilgenbauer, independent operator, but later was carried on and completed as a company project, several local men having interest in the well. The new Skerritt well is about a half mile

TECPRO
BLACK LINE
Pipe Coatings

COLD APPLICATION
EASY TO APPLY
DRIES QUICKLY
WATER PROOF
SOIL PROOF

HAS STOOD THE TEST OF YEARS

USED BY MAJOR PIPE LINE COMPANIES BECAUSE OF ITS PROVEN MERIT

TECHNICAL PRODUCTS, Inc.
Chemical Engineers . . . . Dallas, Texas

TANK CARS
Long or short term Lease

Thousands of cars—various capacities—all modern and conditioned. Rental periods of one trip to ten years. Write for details.

NORTH AMERICAN CAR CORPORATION
Executive Offices:
Chicago, Ill.

HEYDRICK'S NEW MAP
East Texas Field
Accurate and up-to-date.
Scale, 2,000 feet 1 inch.
Cloth $17.50; paper $10; Size 3½x8 feet
HEYDRICK MAPPING COMPANY
Wichita Falls, Texas

PATENTS Write for Free Book
MUNN & CO.
Associated since 1846 with the Scientific American
514 Scientific American Bldg., Washington, D. C.
1551 Scientific American Building, 24 West 40th Street, New York City
1303 Tower Building, Chicago, Ill.
686 Hobart Building, San Francisco, Calif.
511 Van Nuys Bldg., Los Angeles, Calif.

Profit by using the *Classified Section* of The Oil and Gas Journal

west of one of the Pure Oil Co.'s gassers on the big Willie farm of 653 acres, in Section 4, same township. After the Skerritt gasser had been cased and completed the flow was checked at nearly 7,500,000 feet. Thus far the Broomfield gas area has proved one of the most prolific centers for gas production in the State of Michigan. The area has 12 producers with an aggregate potential flow of 44,000,000 feet daily. From this field the Consumers Power Co. is now supplying Midland through its recently built 43-mile transmission line. Most of the Broomfield Township territory already is under lease and it is likely several more wells will be put down in that section in the near future. Development of the field has been held up because of lack of a market but with the building of the pipe line work is expected to increase greatly.

Another well being drilled for oil in the new East Field in Greendale Township, Midland County, will probably be the next to reach the oil bearing formation, the Columbia Oil & Gas Co.'s No. 1 on the F. and P. McLaughlin farm, NW SW NW Section 15, south of the No. 1 Hornick farm, the discovery well of the East Pool. The McLaughlin lease was formerly owned by the Kalamazoo Improvement Co., drillers of the discovery well, but was taken over by the Columbia Oil & Gas Co.

After more than two years of on and off drilling the Mars test, 3 miles northeast of Mount Pleasant, in the SE SW Section 1, Union Township, Isabella County, has been abandoned as a dry hole. Drilling on this well was recently renewed and it was completed through the Dundee formation, and is being plugged. The St. Clair Oil & Gas Co. first started the well and it was later completed by a syndicate. It was said to be one of the lowest wells structurally in the State.

The Meridian Oil & Gas Co.'s No. 1 on the E. L. Russell 120 acres, NW Section 22, Vernon Township, Isabella County, only a short distance north of the 2,500-bbl. gusher on the George Woods farm, was reported making less water than previously. The well was drilled into water but deeper drilling resulted in what at first appeared to be a large oil strike. Water reappeared and for a time seemed to be drowning out the oil production. Now reports indicate that the oil is getting the best of the water. Production of oil is said to be much improved and showing better than 300 bbls. a day. Several wells are being pushed to the oil bearing sand in Vernon Township, but all are comparatively recent wells started and no completions are looked for in that section for some time.

Field News

Meridian Oil & Gas Co. is drilling No. 2 on the E. L. Russell farm, NW Section 22, Vernon Township, Isabella County. Talbot Oil Co. is drilling No. 2 George Woods farm, NW Section 22, same township, and to the west of No. 1 same farm, which did 2,500 bbls. in 24 hours. Mellon Pollock Oil Co. is drilling No. 1 on the Thayer 120 acres, same section and township.

In southeastern Michigan little activity is shown, although a few tests are being made for shallow gas. G. E. LeVeque's No. 1 Scheffler farm, Section 26, Van Buren Township, Wayne County, is reported dry at a depth of 152 feet. Same party drilled No. 1 J. W. Schweizer 20 acres, Section 3, Sumpter Township, same county, and found water at 121 feet. No report has been made of No. 1 Burt Riggs farm, NE SW Section 34, Van Buren Township, same county, which is reported to have struck water at close around 110 feet, less than half a mile east of the good gas well on the Straight farm, same section.

SEES OIL AS UTILITY

By his sensational methods of regulating production of oil in Oklahoma, Gov. William H. Murray hastened the day when the entire industry will be placed on a public utility basis, according to Ernest R. Lilley, professor of economic geology at New York University.

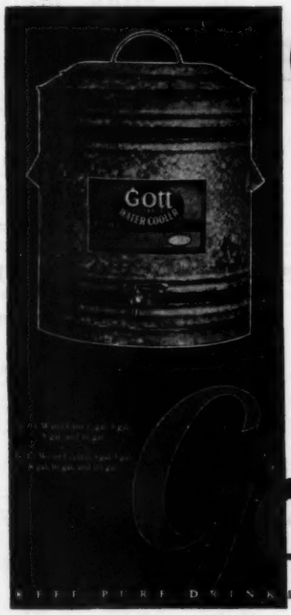
AYER & LORD TIE CO.
Railway Exchange
CHICAGO

Railroad Cross Ties — Timber Products — Lumber — Poles

— Piling — Fence Posts
Wood Treatments and Preservation

PLANTS
Carbondale, Ill., Grenada, Miss., Louisville, Ky., North Little Rock, Ark., Montgomery, Ala.; Marine Ways-Paducah, Ky.

"CREOSOTE OIL PREVENTS DECAY"



Gott Water Cans & Coolers

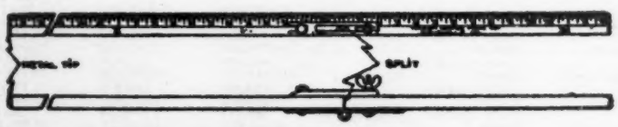
When you have a GOTT Water Cooler handy, you will always be assured of a fresh supply of pure drinking water kept delightfully cool. *Order one from your supply store . . . now!*

Gotkool

H. P. GOTT MFG. CO. • Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY

GAUGE POLES
Any Length For Oil Measurements



"MARSH-JOINT"

For sale by oil country supply houses or furnished promptly by the factory at Titusville, Pa.

Correspondence Solicited

MARSH GAUGE POLE COMPANY
TITUSVILLE, PA.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of July

Runs

	Month (bbls.)	Dy.av. (bbls.)
Prairie P. L. Co.*	554,900	17,900
Gulf P. L. Co.	1,675,278	54,041
Texas P. L. Co.	778,762	25,121
Magnolia P. L. Co.	1,944,019	62,710
Empire P. L. Co.	2,454,362	79,173
Cosden P. L. Co.	634,878	20,480
Stanolind P. L. Co.*	3,106,200	100,200
Oklahoma P. L. Co.	2,277,149	73,456
Other lines*	6,138,000	198,000
Total July	19,563,548	631,081
Total June	20,005,456	666,848
Difference	441,908	35,767

Shipments

Prairie P. L. Co.	2,626,499	84,726
Gulf P. L. Co.	1,674,036	54,001
Texas P. L. Co.	880,766	28,412
Magnolia P. L. Co.	1,548,704	49,958
Empire P. L. Co.	2,607,823	84,123
Cosden P. L. Co.	744,909	24,029
Stanolind P. L. Co.	3,738,197	120,587
Oklahoma P. L. Co.	2,353,122	75,907
Other lines*	6,975,000	225,000
Total July	23,149,033	746,743
Total June	22,426,572	747,552
Difference	722,461	809

Stocks

Prairie O. & G. Co.*	37,460,000
Gulf P. L.-Gypsy Oil Co.	9,121,261
The Texas Company	3,566,327
Magnolia Petroleum Co.	6,642,981
Empire P. L. Co.	4,820,727
Mid-Continent Pet. Corp.	3,662,877
Stanolind Crude Oil Pur. Co.*	18,102,000
Oklahoma P. L. Co.	2,225,653
Carter Oil Co.	7,954,854
Other lines*	17,540,000
Total July	111,096,680
Total June	114,630,501
Difference	3,533,828

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF JULY

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for June and July.

	June,'31	July,'31
Nat. Transit	142,665.44	133,220.85
S. W. Pa. P. L.	74,374.26	71,451.01
Eureka P. L.	303,225.17	289,307.41
Buckeye P. L. (Macksburg)	293,480.77	243,334.42
Buckeye P. L. (Cleveland)	11,410.57	11,493.40
Buckeye P. L. (Lima, etc.)	87,182.23	86,516.97
Indiana P. L.	3,000.67	2,402.03
Cumberland P. L.	156,303.08	164,965.59
N. Y. Transit	28,964.08	25,816.95
Tide Water P. L.	25,859.99	25,578.82
Pure Oil	173,774.98	184,069.94
Bradford Trans.	323,059.46	334,264.05
Stoll Oil Ref.	50,553.60	46,489.49
Total	1,673,854.32	1,618,910.93
Daily average	53,995.30	53,963.70

Petroleum Deliveries

The following table exhibits the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for June and July.

	June,'31	July,'31
Nat. Transit	452,276.53	545,129.48
S. W. Pa. P. L.	446,843.13	444,267.19
Eureka P. L.	400,401.52	389,088.42
Buckeye P. L. (Macksburg)	265,663.53	242,021.51
Buckeye P. L. (Cleveland)	1,709.71	1,950.36
Buckeye P. L. (Lima, etc.)	1,950,031.09	1,906,782.68
Indiana P. L.	998,921.71	975,959.98
Cumberland P. L.	103,631.73	115,573.69
Southern P. L.	11,865.96	71,576.50
N. Y. Transit	169,549.34	173,789.42
Northern P. L.	144,262.80	131,895.41
Tide Water P. L.	472,572.62	403,796.82
Pure Oil	290,065.38	189,026.80
Bradford Tran.	319,547.18	482,852.38
Tuscarora	607,326.68	436,907.19
Total	6,634,671.91	6,560,609.33
Daily average	221,155.73	211,632.56

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of June and July.

	June,'31	July,'31
Nat. Transit	695,669.24	657,463.03
S. W. Pa. P. L.	410,763.21	426,536.86
Eureka P. L.	1,839,688.95	1,741,116.32
Buckeye P. L. (Macksburg)	373,836.66	325,616.77
Buckeye P. L. (Cleveland)	86,846.76	88,005.67
Buckeye P. L. (Lima, etc.)	3,163,645.51	3,110,772.07
Indiana P. L.	508,947.64	527,931.01
Cumberland P. L.	639,041.14	636,001.14
Southern P. L.	248,232.04	214,438.42
N. Y. Transit	156,733.77	101,414.97
Northern P. L.	282,847.01	218,880.21
Tide Water P. L.	836,307.12	1,009,357.89
Tuscarora	12,683.45	12,766.39
Pure Oil	426,437.22	424,712.11
Bradford Trans.	238,670.71	114,837.03
Total	9,903,349.53	9,569,849.78
Decrease	824,890.45	333,499.75

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of June and July, showing gross stocks of the above fields:

	June,'31	July,'31
Pennsylvania	3,682,748.26	3,439,601.00
Lima	763,086.16	787,866.84
Kentucky	649,341.95	646,541.50
Mid-Continent	4,391,327.49	4,264,314.47
Illinois	.....	18,123.10
Michigan	416,845.67	413,402.87
Total	9,903,349.53	9,569,849.78

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
January	52,904	51,749	75,907	53,939
February	57,002	51,833	79,256	55,163
March	57,485	54,252	76,688	54,331
April	56,812	58,444	84,536	54,914
May	62,067	59,902	70,546	53,344
June	58,230	58,523	75,430	54,110
July	57,144	66,087	68,931	50,723
August	57,745	66,087	54,291	.....
September	53,487	67,315	56,595	.....
October	58,100	76,093	58,179	.....
November	53,865	74,831	52,232	.....
December	52,035	74,561	53,999	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
January	146,465	165,721	217,623	175,369
February	167,368	159,387	224,355	183,494
March	158,883	161,474	228,846	189,503
April	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,155
July	189,470	194,763	207,094	211,632
August	192,853	194,946	205,506	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
January	7,596,564	12,220,045	11,831,002
February	8,737,835	12,991,561	11,506,489
March	9,002,058	13,247,317	11,012,162
April	8,978,172	13,233,961	11,044,487
May	8,903,560	12,952,953	10,738,239
June	8,921,275	13,396,855	9,903,349
July	9,211,585	13,265,562	9,569,849
August	9,440,642	13,047,051	.....
September	9,443,067	12,812,018	.....
October	9,441,101	12,437,555	.....
November	9,868,538	11,851,380	.....
December	11,253,953	11,751,952	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, August 1	575,856.71
Runs from wells	494,430.56
Regular deliveries	383,141.98
Other deliveries	247,457.52

The amount of Illinois oil run by the Tide Water Pipe Line Co. in July was 25,578.82 bbls. Deliveries were 6,077.07 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1931—		
July	520,009.38	389,219.05
1930—		
January	543,387.95	498,293.93
February	548,416.33	414,536.59
March	631,944.43	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,060.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,642.12	375,742.43
September	457,001.11	371,691.63
October	478,442.12	320,688.72
November	422,794.68	355,403.12
December	556,418.78	383,719.55
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,628.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13

Tide Water Pipe Co., Ltd., also delivered in July 92,374.01 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	7,418	8,742	38,968	21,226	5,358	81,612	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,433	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	5,367	5,233	32,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	33,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,234	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548
November	39,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129
January	17,613	13,519	154,225	32,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	21,129	235,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	105,000	29,767	35,533	215 833	2,733	5,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	20,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
1930—										
July:	Month	18,802,024	18,032,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,248,811
	Daily average	606,517	581,694	837,856	114,239	55,280	67,089	105,674	123,548	2,491,897
August:	Month	18,770,466	17,152,034	25,069,598	3,491,530	1,700,102	2,151,120	3,193,341	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,417,909
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,003,060	3,239,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,517,913	1,636,552	2,142,885	3,225,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,035,232	3,459,330	1,557,870	2,136,948	2,957,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,103	21,810,359	3,432,661	1,590,951	2,157,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,645
1931—										
January:	Month	16,485,738	14,850,953	20,019,212	3,432,475	1,574,955	2,135,037	2,966,142	3,374,000	64,838,512
	Daily average	531,798	479,063	645,781	110,725	50,805	68,872	95,682	108,839	2,091,565
February:	Month	14,930,932	13,531,930	18,957,571	3,341,016	1,402,492	1,931,616	2,747,024	3,129,000	60,021,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,143,629
March:	Month	16,364,842	16,627,687	22,453,619	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,602
	Daily average	527,898	536,377	724,310	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,541	16,815,990	26,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,384,239
	Daily average	526,785	559,255	896,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,333,867	28,708,684	3,341,366	1,446,274	2,232,568	3,098,419	3,190,000	75,800,138
	Daily average	530,612	559,157	926,086	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,678,200	29,139,533	3,175,440	1,344,450	1,850,511	2,986,200	3,166,000	73,982,070
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,069
Total 12 months		205,372,485	194,173,741	287,793,711	40,973,128	18,432,071	24,945,645	36,607,248	40,226,000	848,624,029